

Nebraska Law Review

Volume 95 | Issue 3

Article 3

2017

Using the Federal Public Trust Doctrine to Fill Gaps in the Legal Systems Protecting Migrating Wildlife from the Effects of Climate Change

Hope M. Babcock

Georgetown University Law Center, babcock@law.georgetown.edu

Follow this and additional works at: <https://digitalcommons.unl.edu/nlr>

Recommended Citation

Hope M. Babcock, *Using the Federal Public Trust Doctrine to Fill Gaps in the Legal Systems Protecting Migrating Wildlife from the Effects of Climate Change*, 95 Neb. L. Rev. 649 (2016)

Available at: <https://digitalcommons.unl.edu/nlr/vol95/iss3/3>

This Article is brought to you for free and open access by the Law, College of at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Nebraska Law Review by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

Hope M. Babcock*

Using the Federal Public Trust Doctrine to Fill Gaps in the Legal Systems Protecting Migrating Wildlife from the Effects of Climate Change

TABLE OF CONTENTS

I. Introduction	650
II. The Impact of Global Climate Change on Wildlife	653
A. General Impact of Climate Change	654
B. The Impact of Global Climate Change on Wildlife ..	656
1. Wildlife Migration	658
2. Assisted Migration and Protecting Migratory Corridors	661
III. Rigid Federal Laws and Inadequate Private Conservation Mechanisms	664
A. Federal Lands and Federal Laws	665
B. Inadequate Private Conservation Mechanisms	669
IV. The Public Trust Doctrine and a Federal Trust in Wildlife	673
A. The Public Trust Doctrine	674
B. Strong Federal Interest in Wildlife	680

© Copyright held by the NEBRASKA LAW REVIEW

* Professor of Law, Georgetown University Law Center. Professor Babcock teaches natural resources law, among other topics, and directs an environmental clinic at Georgetown. She has written numerous articles on the public trust doctrine, many of which are referenced in footnotes to this piece. She has served as a visiting professor at Pace University Law School, and as an adjunct at the University of Pennsylvania, Yale, Catholic University, and Antioch law schools. In addition to experience in private practice, where she focused on energy and environmental law, Professor Babcock served as a Deputy Assistant Secretary of Energy and Minerals in the U.S. Department of the Interior. Following her time at Interior, Babcock served as a deputy general counsel and general counsel of the National Audubon Society from 1981–1991.

V. Three Theories Supporting the Existence of a Federal Public Trust Doctrine and Why It Has Not Been Displaced by Statutory Law	684
A. A Federal Doctrine of Public Trust	685
B. Objections to a Federal Public Trust Doctrine	693
1. Statutory Law Displaces Common Law Doctrines Like the Public Trust Doctrine	693
2. The Public Trust Doctrine Invites Courts to Intrude in Policy Making by the Political Branches	695
VI. Proposal	696
VII. Conclusion	700

*The constant development of unprecedented problems requires a legal system capable of fluidity and pliancy. Our society would be strait-jacketed were not the courts, with the able assistance of the lawyers, constantly overhauling the law and adapting it to the realities of ever-changing social, industrial and political conditions.*¹

I. INTRODUCTION

Not unlike before the biblical flood, the world stands on the brink of catastrophe awaiting rescue by a virtual ark. The most vulnerable to this looming catastrophe are the world's wildlife. Changes in global temperature and precipitation as well as sea level rise and acidification of the ocean are already affecting wildlife by limiting the availability and quality of habitat and the abundance of prey, and by increasing predation and disease.² Sea level rise and unstable storm patterns threaten coastal wildlife, while changing precipitation and temperature patterns are drying out habitat, making some habitat more susceptible to wildfires, and other habitat too cold or too hot. These weather changes are creating pressure on wildlife to move from the increasingly inhospitable places they currently occupy to more suitable locations.³ As wildlife move, human obstacles make their journey harder. Neither federal laws nor private land protection

1. Charles F. Wilkinson, *The Public Trust Doctrine in Public Lands Law*, 14 U.C. DAVIS L. REV. 269, 308–09, n.182 (1980) (quoting JEROME FRANK, *LAW AND THE MODERN MIND* 12–13 (1930)).
2. Jaclyn Lopez, *Biodiversity on the Brink: The Role of Assisted Migration in Managing Endangered Species Threatened by Rising Seas*, 39 HARV. ENVTL. REV. 157, 161–62 (2015).
3. Jonathan W. Atwell, Dawn M. O'Neal, & Ellen D. Ketterson, *Animal Migration as a Moving Target for Conservation: Intra-Species Variation and Responses to Environmental Change as Illustrated in a Sometimes Migratory Songbird*, 41 ENVTL. L. 289, 310–11 (2011) (“[C]limate change and habitat alteration have the potential to lead to geographic range shifts, changes in intra- or inter-species competition, and even the cessation of migration altogether.”).

mechanisms, like conservation easements or land trusts, have sufficient elasticity to protect migrating wildlife from interference during their journey to more suitable habitat. This Article's supposition is that unless flexibility can be found in either public or private law to protect wildlife as it moves, many species of wildlife may not survive. The Article examines how law might be used to protect shifting wildlife habitat needs when it is not known when and where those new needs will arise.

One thing that climate change does is challenge the capacity of existing federal laws and private property mechanisms to loosen their attachment to a particular geographic place so that wildlife are still protected when they move to avoid the effects of climate change—a need not envisioned when these measures were put into place. Rather than parse existing federal laws to see if they might be interpreted to protect new, as-yet unoccupied habitat and migratory corridors, this Article searches for elasticity in common law property principles, like the public trust doctrine, to see if they might be more effective.

The public trust doctrine is firmly embedded in state law and has been used at the state level for centuries to protect water-based trust resources and traditional public uses of those resources without having to actually acquire or condemn the land.⁴ But relying on states to use the doctrine to protect moving wildlife is problematic as migration corridors may cross multiple political boundaries, including national ones, and may encounter local opposition that is hard for a state to overcome. These problems with the doctrine's application at the state level could result in a patchwork of protected property too small and isolated to be successful as alternative habitat for many species and in fragmented migratory corridors that lack the necessary connectivity between segments. A federal version of the public trust doctrine, however, could transcend political borders and protect sufficient land to assure migrating wildlife safe passage.⁵ A federal public trust doc-

4. For articles describing the origins of the public trust doctrine and its various uses see generally, Hope M. Babcock, *Is Using the Public Trust Doctrine to Protect Public Parkland from Visual Pollution Justifiable Doctrinal Creep?*, 42 *ECOLOGY L.Q.* 1 (2015); Richard M. Frank, *The Public Trust Doctrine: Assessing its Recent Past & Charting Its Future*, 45 *U.C. DAVIS L. REV.* 665 (2012); Joseph L. Sax, *The Public Trust Doctrine in Natural Resources Law: Effective Judicial Intervention*, 68 *MICH. L. REV.* 471 (1970); Charles F. Wilkinson, *The Headwaters of the Public Trust: Some Thoughts on the Source and Scope of the Traditional Doctrine*, 19 *ENVTL. L.* 425 (1989).

5. For an interesting example of the use of the public trust doctrine at the federal level, see Karl Coplan, *Public Trust Limits on Greenhouse Gas Trading Schemes: A Sustainable Middle Ground?*, 35 *COL. J. ENVTL. L.* 287, 304–05 (2016) (concluding that “[t]he public trust doctrine is a fundamental limit on sovereign power enforceable through the Tenth Amendment reservation of the rights of the people; that the public trust doctrine, as such, can limit congressional action; and that the public trust doctrine’s scope extends beyond the navigable waters to in-

trine would also sidestep the need to achieve political consensus among competing stakeholders, as would be required for any collaborative effort at the state or local level. However, the existence of a federal public trust doctrine is untested in the courts and very controversial. Additionally, although the doctrine has evolved through the centuries to reflect modern values, its application to upland wildlife habitat is uncertain.

I argue in this Article that there are at least three theoretic bases for a federal version of the public trust doctrine. First, nothing in the doctrine confines its use to the states; second, the close parallels between state and federal powers with respect to protecting and managing natural resources invite parallelisms between the sources of the doctrine; and third, the Ninth Amendment offers a constitutional purchase for it. At a minimum, the doctrine, in any form, offers interpretative principles that might assist federal courts in assessing the legality of barriers to wildlife migration, regardless of whether they arise on public or private land.

To make the use of a federal public trust doctrine more politically palatable, the Article proposes to deploy it cautiously and modestly by anchoring its use to wildlife migrating off public lands. A combination of a strong protective federal interest in wildlife that resides even temporarily on public lands and trust responsibility over public lands may provide a basis for protecting wildlife as it moves across unprotected land to the next federal preserve. Additionally, the Article suggests that the doctrine should be used only to prevent complete conversion of private lands to a use that is hostile to migrating wildlife or to encourage the temporary removal of migratory barriers. Private landowners could prevent the doctrine's application by entering into an agreement with the appropriate federal agency. These agreements would function like restrictive covenants that attach to the property's title, and would be duly recorded—hence enforceable if the restrictions were ignored. This flexibility would allow development of trust-imprinted lands where development can be designed in a way that does not impede migrating wildlife.

Because of uncertainty about when, where, and how wildlife will respond to climate change and hence where migratory corridors or future protected areas will need to be, this Article also proposes a rolling federal public trust doctrine that keeps pace with wildlife as it moves.⁶

clude other public trust assets, like the atmosphere, that by their nature are administered by the polity for the benefit of the people and cannot be alienated to private interests.”).

6. Here the author owes a debt to a student note proposing this modification for conservation easements. See Note, Tristan Kimbrell, *Moving Species and Non-Moving Reserves: Conservation Banking and the Impact of Global Climate Change*, 22 FORDHAM ENVTL. L. REV. 119 (2010) (proposing using the concept of an “ark easement,” which would represent strategically placed reserves that

To avoid placing huge swaths of the United States landmass under the shadow of the public trust doctrine, the Article recommends that as the trust moves to keep pace with migrating wildlife, land that is no longer useful as habitat could be released. This proposal would allow formerly trust-protected lands to reenter the market place and tax rolls unencumbered. In this way, as new lands come within the doctrine's reach, the release of other land could potentially achieve a rough regional balance of trust-protected lands along various migratory routes.

The Article develops these thoughts in Part II by describing the impact of climate change generally and on wildlife, specifically. It also introduces the reader to the importance and precariousness of migration corridors. Part III explores deficiencies in both federal land and wildlife laws and private land preservation mechanisms—like conservation easements, land banks, and land trusts—in an era of climate change. In Part IV, the Article discusses both the public trust doctrine and the federal government's trust responsibilities over public lands and resident wildlife, including when wildlife leaves those lands. Part V develops the three rationales supporting the existence of a federal public trust doctrine identified above—the doctrine's jurisdictional capaciousness, parallelism in state and federal governance responsibilities, and the Ninth Amendment. Part V also introduces the idea that courts might use the doctrine as a source of interpretative principles to evaluate the legality of any barriers to wildlife migration and as a basis for a hard look at these barriers. Part VI introduces the reader to suggested modifications of the doctrine to make it more politically salient. The Article concludes by suggesting that federal land managers and conservationists modestly use the federal public trust doctrine to fill gaps in existing federal wildlife protection laws and to counter deficiencies in private land preservation tools, and that courts use public trust principles to evaluate disputes involving barriers to wildlife migration.

II. THE IMPACT OF GLOBAL CLIMATE CHANGE ON WILDLIFE

[W]hat happens to socioecological systems over the next decades, and most likely over the next few centuries, will largely be beyond human control.⁷

could be used as stepping stones for migrating species. Once it was determined that any such ark easement was no longer serving its ark purpose, it would be extinguished and the proceeds would be redeployed to serve similar conservation purposes on new lands).

7. Robin Kundis Craig, "Stationarity Is Dead"—*Long Live Transformation: Five Principles for Climate Change Adaptation Law*, 34 HARV. ENVTL. L. REV. 9, 14 (2010).

A. General Impact of Climate Change

Nearly all climate scientists agree that human driven climate change is happening.⁸ Many believe that “we have passed the point where mitigation efforts alone can deal with the problems that climate change is creating.”⁹ This is the result of a phenomenon called “committed warming”—a situation in which sufficient greenhouse gases have already accumulated in the atmosphere ensuring that temperature increases and climate instability will continue regardless of any global mitigation measures the world might take.¹⁰ Ongoing emissions will only make matters worse by increasing the Earth’s energy imbalance.¹¹

Climate scientists are predicting temperatures in the United States will increase as much as eleven degrees Fahrenheit by the end of the current century.¹² They also forecast that sea levels may rise up to two meters by the same date.¹³ Although the Earth’s average

8. *Id.*; see also James L. Olmsted, *The Butterfly Effect: Conservation Easements, Climate Change, and Invasive Species*, 38 ENVTL. AFFAIRS 41, 43 (2011) (“Every day about 6.9 billion of us, in ways small and large, collectively discharge prodigious amounts of carbon and other greenhouse gases into the atmosphere. The net result is global climate change.”).

9. Craig, *supra* note 7, at 14.

10. *Id.* See also Elizabeth Fuller Valentine, *Arguments in Support of a Constitutional Right to Atmospheric Integrity*, 32 PACE ENVTL. L. REV. 56, 60–61 (2015) (“Direct measurements of carbon dioxide in the atmosphere and air trapped in ice reveal that carbon dioxide concentrations are forty percent higher today as compared to levels prior to the industrial revolution. The current atmospheric concentrations of carbon dioxide and two other greenhouse gases—methane and nitrous oxide—are presently at levels unprecedented in the last 800,000 years.”); *id.* at 61 (“Starting 800,000 years ago and continuing up until the start of the twentieth century, atmospheric concentrations of carbon dioxide were in the range of 170 to 300 ppm. Today, atmospheric concentrations of carbon dioxide have increased to nearly 400 ppm. Research suggests that the last time that atmospheric concentrations of carbon dioxide approached 400 ppm was three to five million years ago.”).

11. Valentine, *supra* note 10, at 65.

12. Nicholas Whipps, *What Happens When Species Move but Reserves Do Not? Creating Climate Adaptive Solutions to Climate Change*, 66 HASTINGS L.J. 557, 559 (2015); see also Pamela S. Chasek, *Rethinking the Law and Policy of Protected Areas in a Warming World: Evolving Approaches of American Conservation Organizations*, INT’L WILDLIFE & POL’Y J. 41, 49 (2012) (“The 2007 reports of the Intergovernmental Panel on Climate Change (IPCC) conclude that human activity is ‘very likely’ causing the world to warm. The average surface temperature of the earth increased 0.76° C (1.4 F) in the 20th century and the prediction is that it will increase by another 1.8 to 4.0 C (3.2 to 7.2° F) in the 21st century, depending on pollution levels.”); Valentine, *supra* note 10, at 63 (“Researchers predict that near-surface air temperature of the average location on Earth will also move beyond historical variability by 2047 (plus or minus 14 years) under a business as usual scenario and by 2069 (plus or minus 18 years) under an emissions stabilization scenario.”).

13. Olmsted, *supra* note 8, at 46.

surface temperature has warmed only 0.8 degrees since the 1900s,¹⁴ the current rate at which temperatures are increasing is more than ten times faster than previously and is projected to continue at a faster, more intense rate than what is currently being experienced.¹⁵

“Tropical areas will be the first to experience historically unprecedented climate because of the[ir] relatively small natural climate variability,” with the result that by 2050, “most tropical regions will have every subsequent month outside of their historical range of variability.”¹⁶ Changes in the basic elements of ecological systems prompt shifts and rearrangements of species, food webs, ecosystem functions, and ecosystem services, complicating and even obliterating recognizable ecologies.¹⁷ The impact on temperatures is not uniform,¹⁸ making any prediction about those impacts close to impossible.¹⁹ One thing that seems more certain is that “many of these climate change-driven ecological changes are likely to become both worse and more complex in the coming decades”²⁰

As land, air, and water temperatures rise, the amount and timing of precipitation changes as do hydrology, soil conditions, and vegetation. “We are moving along an at least somewhat unpredictable path to an as yet unpredictable final destination Fundamental metamorphosis of the natural world, and of the ecosystem services upon which human societies depend, is becoming our largely uncontrollable reality.”²¹ Climate change is changing humanity’s sense of what is “natural.”²²

14. Valentine, *supra* note 10, at 61.

15. *Id.* (“More worrisome is the fact that the pace of climate change over the next thirty to eighty years is projected to continue to be faster and more intense than it presently is.”).

16. *Id.* at 63.

17. Craig, *supra* note 7, at 15.

18. *Id.* at 25.

19. *Id.*; see also *id.* at 26 (“Climate change impacts operate on complex ecosystems and set in motion feedback loops and nonlinear changes, neither of which are entirely (or even mostly) predictable through existing knowledge and modeling.”). Professor Olmsted analogizes climate change to the butterfly effect, which “stands for the proposition that certain outcomes are so sensitive to their initial states that the resulting complexity defies human prediction. Embedded in this complexity is the operation of feedback loops, exponential increases and decreases in system components, and irreversible tipping points. In this sense, the butterfly effect is a powerful allegory of global climate change.” Olmsted, *supra* note 8, at 43. Olmsted goes on to say “[l]ike Eckels’s single, unfortuitous boot print, our collective carbon footprint is bringing disastrous, cascading, and intensifying change to literally every part of our once Edenic planet.” *Id.* at 44.

20. Craig, *supra* note 7, at 25.

21. *Id.* at 37–38.

22. *Id.* at 38; see also Jedediah Purdy, *Coming into the Anthropocene*, 129 HARV. L. REV. 1619, 1637 (“The first and more straightforward is the *Anthropocene Condition*, the situation in which human action has changed every place, species, and system of the natural world, from the upper atmosphere to the deep sea. The

B. The Impact of Climate Change on Wildlife

Global climate change's impact on wildlife may be even more profound than the impact on people, if they are separable. Sea levels along the United States Coasts of the Atlantic Ocean and Gulf of Mexico are rising at a pace that exceeds the global average established during the past fifty years.²³ Human fortifications in response to rising seas are trapping and squeezing coastal species out of transitional habitat between the land and the sea.²⁴ The intensity of "high severity storms" in the Atlantic Ocean is escalating, "as are the frequency of storm-generated large surge events and wave heights."²⁵ Storm surges coupled with rising seas flood coastal wildlife habitats and push water inland threatening those habitats as well.²⁶

Increasing temperatures in the arctic are melting ice and eliminating critical hunting ground for polar bears.²⁷ Warmer water temperatures bleach coral and adversely affect cold-water fish species like salmon and trout,²⁸ which causes the collapse of critically important ecosystems that sustain large populations of fish and other aquatic species.²⁹ Larger and more frequent floods increase soil erosion, which decreases both water quality and the quality of aquatic habitat.³⁰ Severe droughts, which also appear to be increasing,³¹ kill

Anthropocene, in this sense, is the time in which there is no longer any such thing as a 'nature' that is apart from and prior to human beings: all the world is a joint product of human activity and underlying nonhuman phenomena, blended in patterns from which the two can no longer be separated.").

23. Lopez, *supra* note 2, at 158.

24. *Id.*

25. *Id.* at 160.

26. *Id.* at 160.

27. Chasek, *supra* note 12, at 50.

28. *Id.*

29. *Id.*

30. *Id.*

31. The extent to which droughts are actually increasing as a result of climate change is a matter of some dispute in the scientific literature. See, e.g., John Abraham, *Global Warming Will Intensify Drought, Says New Study*, GUARDIAN (Dec. 23, 2013), <https://www.theguardian.com/environment/climate-consensus-97-per-cent/2013/dec/23/global-warming-intensify-droughts> [<https://perma.unl.edu/6AC8-57QM>] (concluding that different measurement methodologies used by various studies make it hard to see trends, but that the consensus is intensifying droughts); Aiguo Dai, *Increasing Drought Under Global Warming in Observations and Models*, 3 NATURE CLIMATE CHANGE 52 (2013) (Feb. 2013) (suggesting severe drought conditions may occur in the eastern United States, southeast Asia and Brazil as a result of climate change); Justin Sheffield, Eric F. Wood & Michael L. Roderick, *Little Change in Global Drought over the Past 60 Years*, 491 NATURE 435 (Nov. 15, 2012); see also David Simeral, *Droughts and Climate Change*, CTR. FOR CLIMATE & ENERGY SOLUTIONS (Sept. 6, 2016), <http://www.c2es.org/science-impacts/extreme-weather/drought> [<https://perma.unl.edu/VB76-BY98>] (concluding "global warming will increase the risk of drought in some regions, particularly in the Southwest United States").

plants that wildlife depend on for food and shelter and shrink water sources.³² “Droughts caused by climate change could also desiccate up to ninety percent of central wetlands . . . that provide breeding, resting, and nesting habitat for millions of waterfowl, shorebirds, grassland birds, and other wildlife.”³³ Climate change affects the availability of food for migrating birds that arrive on schedule, only to find the insects, seeds, and flowering plants on which they depend “have hatched or bloomed too early or not at all. Milder winters cause seasonal food caches to spoil, so wildlife species that depend on food stores to survive the winter are left without sustenance.”³⁴ A recent study of climate records from 1980 to 2010 that compared climate information with population trends of 145 common European bird species and 380 common American bird species concluded that even small changes in the abundance of common bird species, which dominate ecosystems, “can lead to large changes in ecosystem structure, function, and service provision.”³⁵

Excessive heat appears to be the cause of a 90% decline in the population of the northwestern Minnesota moose in the past twenty years³⁶ and the 36% die-off in the American Pika, a small rabbit-like mammal that inhabits cold, wet boulder-strewn fields in the mountains of the western United States, which has shifted its range upslope 900 feet in response to higher temperatures.³⁷ “As different species respond to changes in climate in idiosyncratic ways, ecological communities will begin the process of disassembling.”³⁸ Since there is no historical precedent for this, there is considerable uncertainty about how these communities may reassemble in new places, and how, once reassembled, they might function, if at all.³⁹

32. Chasek, *supra* note 12, at 50.

33. *Id.* at 50–51.

34. *Id.* at 50 (noting that the shift in the springtime abundance of insects has adversely affected the reproductive success of songbirds that depend on this abundance during their critical nesting phase).

35. Darryl Fears, *Birds Are Swapping Habitats Like a Game of Musical Chairs As Regions in Europe and the United States Warm, New Study Says*, WASH. POST, Apr. 1, 2016, at A3.

36. Chasek, *supra* note 12, at 50.

37. *Id.* See also, Donelle Schwalm, Clinton W. Epps, Thomas, Rodhouse, William B. Monahan, Jessica A. Castillo, Chris Ray & Mackenzie R. Jeffress, *Habitat Availability and Gene Flow Influence Diverging Local Population Trajectories Under Scenarios of Climate Change: A Place-Based Approach*, 22 GLOBAL CHANGE BIOLOGY 1572 (2016) (examining different species distribution modeling for assessing current and future impacts of climate change on species' distributions).

38. Chasek, *supra* note 12, at 51; see also Fears, *supra* note 35, at A3 (“Various species of birds flocking from one range to another leaves more than just a void. It can do as much harm to a natural ecosystem as humans who abandon one city for another can hurt the economy of their place of origin.”).

39. Chasek, *supra* note 12, at 51.

Scientists estimate that 41% of all wild species have been affected in some way by recent global climate change,⁴⁰ and that many are unlikely to survive as a result.⁴¹ Indeed, scientists “predict widespread extinctions: based on mid-range climate change scenarios, 15–37% of species will be extinct by 2050; 20–30% of species face an increased risk of extinction with a 23 degrees Celsius rise, and 40–70% with a 3.5 degree rise”⁴² To adapt to the climate change scenario projected for the next one hundred years, wild vertebrate species will have to evolve at a rate 10,000 times faster than their historical rate of evolution.⁴³ Bottom line, “[e]ach lost species signals the permanent loss of millennia of information and future value. In the end, each lost species is a lost opportunity.”⁴⁴

1. *Wildlife Migration*

A predicted effect of climate change will be the wholesale migrations of entire species—and indeed entire biomes—as increases in average temperatures in their native climes send them northward, in search of climates similar to those in which they evolved. As an example of this, the Baltimore Oriole, the eponymous mascot for the Orioles baseball team, may no longer be found in the Washington region thirty years from now.⁴⁵ Literally thousands of species are moving an average of about 17 kilometers per decade.⁴⁶ The availability of suitable habitat along the route for “climate surfing species” will determine their survivability.⁴⁷

40. Kimbrell, *supra* note 6, at 119.

41. Craig, *supra* note 7, at 69 (referencing the journal *Nature* and saying “[m]any plant and animal species are unlikely to survive climate change. New analyses suggest that 15-37% of a sample of 1,103 land plants and animals would eventually become extinct as a result of climate changes expected by 2050.”). *See also id.* at 51 (commenting that the “IPCC noted in 2007, one of the potential barriers to climate change adaptation is ‘the inability of natural systems to adapt to the rate and magnitude of climate change.’”).

42. Lopez, *supra* note 2, at 162 (“58% of plants and 35% of animals will lose more than half of their current climatic range by the 2080s under the current greenhouse-gas emissions scenario.”).

43. *Id.*

44. Whipps, *supra* note 12, at 587. *See also id.* at 564 (“There are currently more than 20,000 threatened species worldwide, including 1517 populations listed as being in danger of extinction in the United States alone. Left unchecked, it is clear that humans will continue habits that lead to species extinctions. Markets have traditionally ignored species loss as an externality to productive economic activities, such as farming or foresting.”).

45. Fears, *supra* note 35, at A3.

46. Whipps, *supra* note 12, at 563; *see also* Kimbrell, *supra* note 6, at 119 (“Scientists discovered that ninety-nine species of birds, butterflies, and alpine herbs, on average, were moving towards the poles by 3.8 miles a decade.”).

47. Olmsted, *supra* note 8, at 47 (“Such ‘climate surfing’ across isotherm lines will determine the survival, or extinction, of the climate surfing species as they arrive at stopping points along the way that may or may not be habitable.”).

Wildlife may be unable to adapt quickly enough to rapid climate change in their current habitats or move quickly enough to new, more suitable areas as their current habitats change for the worse.⁴⁸ Human impacts on the environment have undermined what adaptive capacity species might otherwise have, and climate-driven ecological changes “are already outstripping whatever adaptive capacity remains.”⁴⁹

Some wildlife will be unable to find new, suitable habitat,⁵⁰ but others will be unable to get to places where the climate is suitable because of barriers along the way. Most of the land migrating species will encounter during their journey will have been “repurposed in some way for human use.”⁵¹ These species may find themselves caught between landscape changes caused by climate change, on one side, and by human development, on the other. Changing conditions in protected areas may force wildlife using those areas away from the protection they offer. If one of these areas is encircled by land that has been substantially modified or sealed off by a barrier like a fence or a major road there may be no migratory route out.⁵² Many wild species in this situation stand a high likelihood of going extinct.⁵³ “For humans, a move of ten thousand miles would not necessarily spell death; it would simply require that we practice another viable way of life. Other species do not have this same behavioral plasticity.”⁵⁴ And, while “humans have the capacity to mold a plot of land to meet a wide variety of needs,” most non-human species lack that capacity.⁵⁵

By altering habitat as well as food and water availability and increasing ecological disturbances, climate change not only forces wildlife into migrating, but can also adversely affect the migrations themselves.⁵⁶ The longer the migration and the longer the time span is during which the migration takes place, the greater the chance that the land being traversed by migrating wildlife will be exposed to dif-

48. Chasek, *supra* note 12, at 51.

49. Craig, *supra* note 7, at 36–37.

50. *Id.* at 69. See also Whipps, *supra* note 12, at 563–64 (“Scientists count habitat loss as one of ‘[t]he main causes of species extinction, and humans are the largest source of habitat loss.’”).

51. Whipps, *supra* note 12, at 563.

52. Chasek, *supra* note 12, at 51.

53. Whipps, *supra* note 12, at 563.

54. *Id.* at 561.

55. *Id.*

56. Robert L. Fischman, *Migration Conservation: A View from Above*, 41 ENVTL. L. 277, 283 (2011); see also Thomas T. Moore, *Climate Change and Animal Migration*, 41 ENVTL. L. 393, 404 (2011) (“Since migratory species can cross thousands of kilometers to complete migrations, a potential threat is that climate change may alter habitat along the migration path in many different ways.”).

ferent climate pressures.⁵⁷ Indeed, climate change may “create novel ecosystems” in new areas that might otherwise be suitable for climate migrants, which might “cause migration corridors and destinations to shift out of protected areas.”⁵⁸

Additionally, there may be unintended negative consequences to wildlife migrations on this geographic scale. Thus, while migration to new, more hospitable areas may save the migrating species, migrants are an invasive species in their new habitat. They may outcompete and displace resident species, including endangered species.⁵⁹ Non-resident wildlife could over-browse vegetation decreasing the area’s regenerative capacity and productivity, adversely affecting a wide range of species, especially if migrations shift species into new, more environmentally sensitive areas.⁶⁰ Migrants can also function as disease vectors bringing new diseases from distant areas, which can infect wildlife already stressed by climate change.⁶¹

Wildlife migrations can involve long, cross-continental journeys or comparatively short trips of a few hundred meters.⁶² Except in the case of very short migrations, local land use planning operates at the wrong scale to respond to the size and length of climate-driven migrations scientists expect.⁶³ The predicted long distances and multiple jurisdictions traversed by migrating species in response to climate change make it difficult to protect not only the migrating species, but

57. Moore, *supra* note 56, at 404 (“The strength of this effect will vary depending on the scale of migration, so this will especially be a threat for long-distance migrants, as the chance of exposure to differing climate pressures increases as travel distance increases.”).

58. *Id.* at 405. Moore recommends that there should be more protected migration corridors as that will create “more options” for migrating wildlife to adapt to a changing climate. *Id.*

59. Kimbrell, *supra* note 6, at 135.

60. Moore, *supra* note 56, at 400; *see also id.* at 398–400 (“A shift in a migration corridor could potentially disperse novel seed types, alter species composition, and introduce invasive species.”); Olmsted, *supra* note 8, at 44 (noting the success of humans as an invasive species, and saying: “As we try to feed and house nearly 6.9 billion people, with a projected increase to 9.1 billion by 2050, all of humanity has become an invasive species—and a very successful one at that. We no longer have any natural enemies; we are extraordinarily adaptable and able to thrive under almost any environmental conditions.”).

61. Moore, *supra* note 56, at 399 (“[M]igrants themselves may also cause disturbances to other species and ecosystems as a vector bringing disease from distant locations. The spread of the West Nile virus in the Eastern United States and Lyme disease have been attributed to migrating birds. Climate change may increase susceptibility of local species to disease brought by migrants by creating conditions less hostile to new pathogens.”).

62. *Id.* at 394; *see* David N. Cherney, *Securing the Free Movement of Wildlife: Lessons from the American West’s Longest Land Mammal Migration*, 41 ENVTL. L. 599, 601 (2011) (“[M]igrations are most easily conceived of as the seasonal movement of animals between two distinct habitats.”).

63. Craig, *supra* note 7, at 57.

also all the stopover, breeding, and winter areas that are traversed.⁶⁴ Because of their length, migratory corridors of necessity involve “more dispersed parties with fewer shared interests” making it unlikely that the population status of migrating wildlife will be of much, if any, interest to the landowners or local political jurisdictions that wildlife crosses or flies over.⁶⁵

2. *Assisted Migration and Protecting Migratory Corridors*

To enable species to move when they lose the use of their current habitat, areas beyond their current ranges may need to be protected.⁶⁶ Doing this will help species retreat on their own from inhospitable areas.⁶⁷ However, this Article does not suggest, as others do,⁶⁸ that people should assist in the migration of wildlife⁶⁹ through the managed relocation of species.⁷⁰

Assisted migration is a much debated adaption strategy that this Article sees no need to consider as a solution.⁷¹ It raises ethical and liability questions and difficult choices for wildlife management agen-

64. Moore, *supra* note 56, at 404.

65. Steven L. Yaffee, *Collaborative Strategies for Managing Animal Migrations: Insights from The History of Ecosystem-Based Management*, 41 ENVTL. L. 655, 672 (2011); see also *id.* at 660–61 (“While traditional land management might have focused on the place-based needs of a population, [in this era of climate driven migration,] migration management must expand management boundaries to include pathways and far-flung places of importance to a species.”).

66. Lopez, *supra* note 2, at 170–71; see also Pola Lem, *Climate Change Creates Winners and Losers Among Birds*, CLIMATEWIRE (April 1, 2016), <http://www.eenews.net/climatewiree/stories/1060034932> [<https://perma.unl.edu/SC5A-WH6G>] (“If science suggests that many species mover farther north . . . that this tells conservationists to allocate more land toward the northern end of species ranges rather than the southern end.”).

67. Lopez, *supra* note 2, at 171.

68. See Purdy, *supra* note 22, at 1634 (referring to the “rise of a new strain of what one could call pro-mastery environmentalism, which embraces technology such as carbon capture and geoengineering and is enthusiastic about the human role in shaping the world. The claim of this school of thought is that human impact on the planet is so vast and irreversible that people must give up misgivings about their world-shaping power if they are to use it well.”).

69. One federal law that engages in assisted wildlife is the Endangered Species Act (ESA). Lopez, *supra* note 2, at 159 (“ . . . through the ESA, the Service has the responsibility to consider utilizing assisted migration, manifested as active or passive aid-through its authority to implement recovery plans, create experimental populations, and designate unoccupied critical habitat-to help imperiled species survive a rapidly changing environment.”). For a list of articles supporting or opposing assisted migration, see *supra* note 4.

70. Lopez, *supra* note 2, at 159 (saying “[m]anaged relocation,” which is a form of active assisted migration, is “the intentional act of moving species, populations, or genotypes (the target) to a location outside a target’s known historical distribution for the purpose of maintaining biological diversity or ecosystem functioning as an adaptation strategy for climate change”).

71. Craig, *supra* note 7, at 52.

cies about which species to assist.⁷² Assisted migration also requires significant management planning, likely ongoing monitoring and management of the populations that have been moved⁷³ and will result in lost opportunity costs.⁷⁴ There is a significant ecological risk in moving species to a new area, and no evidence that any translocated species will have the time or capacity to adjust to the new ecosystems they have been moved to before climate change adversely affects them.⁷⁵ Additional management problems are also created because it is “unlikely that any natural migratory behavior scrambled by the effects of climate change could be manipulated by humans to achieve anything near an orderly and linear migration.”⁷⁶

However, passive assisted migration, such as protecting existing migratory corridors and habitat reserves or creating new ones, might help species avoid the full effects of climate change.⁷⁷ Designed properly, migratory corridors facilitate connectivity between protected areas. They “offer a way to accommodate the natural, albeit climate change induced, migration of species and even entire ecosystems”⁷⁸ to new, more suitable habitat. As animals migrate across boundaries, “retaining and enhancing connectivity among habitats used by migrating animals” becomes critically important.⁷⁹ Migratory connectivity links breeding sites, migration routes, and wintering areas of importance to individual members of a species or an entire population.⁸⁰

72. Lopez, *supra* note 2, at 159.

73. *Id.* at 189.

74. *Id.* at 190.

75. *Id.*; see also Craig, *supra* note 7, at 53 (referring to her own article and saying “this Article consciously adopts an attitude of humility in the face of ecological responses to climate change and assumes that, given enough room and enough options, Nature will generally do a better job of adapting ecosystems to new baseline conditions than humans will”).

76. Olmsted, *supra* note 8, at 71 (“[C]limate change-induced species migrations can be expected to be disorderly and unsynchronized.”).

77. Lopez, *supra* note 2, at 1562–63; see also Chasek, *supra* note 12, at 52 (“One way to facilitate the adaptation of ecosystems to climate change, and a tool now being built into protected area systems plans, is the designation of biological corridors.”).

78. Chasek, *supra* note 12, at 52.

79. Robert L. Fischman & Jeffrey B. Hyman, *The Legal Challenge of Protecting Animal Migrations as Phenomena of Abundance*, 28 VA. ENVTL. L. J. 211 (2010) (“Migrating animals are often the vehicles connecting dispersed habitat, transferring nutrients, energy, and other biological resources.”); see also *id.* at 278 (“Connectivity linking breeding sites, travel paths, wintering areas, and key sources of food across landscapes is . . . critical for effective adaptation to climate change, which will spur species to disperse into new regions. In that respect, successful efforts to maintain animal migrations may create templates for improving ecological resilience as climate change accelerates.”).

80. Fischman, *supra* note 56, at 282; see also Fischman & Hyman, *supra* note 79, at 211 (mentioning a recent U.S. government report that discussed how the national

A side benefit of focusing on migratory connectivity between different regions of the country, or even countries, is fostering socioeconomic connections between these disparate areas. These human connections can lead to “a more reliable foundation for effective and sustainable conservation efforts to protect migratory species.”⁸¹ Socioeconomic connectivity can also encourage political commitment to support long-term conservation initiatives like those involved in maintaining long-distance migratory corridors⁸²—a potential antidote to the anomie that might otherwise afflict the incongruent interests of landowners along the route.⁸³ The idea of social connectivity is relevant to federal agencies as well, given that most federal reserves are surrounded by private lands, the boundaries of which are frequently crossed by the species they harbor.⁸⁴

“Whether or not corridors will be an element of successful adaptations to climate change will depend, of course, on a variety of factors, including the scale of the landscapes over which they are deployed, the location, size, and habitat composition of specific corridors, and the actual behaviors of the targeted species”⁸⁵ not to mention integrated and continuous political and private support by affected jurisdictions, as noted above. Lack of baseline information about various species, like their habitat needs, behaviors, and natural migration cycles, create challenges with respect to identifying migration corridors in normal times, but these are not normal times. While migration corridors are nothing new and have long been promoted as a way to reconnect

wildlife refuge system can adapt to climate change by establishing “corridors of connectivity for migrations”).

81. Peter P. Marra, David Hunter, & Anne M. Perrault, *Migratory Connectivity and the Conservation of Migratory Animals*, 41 ENVTL. L. 317, 318–19 (2011); see *id.* at 348 (“[M]igratory connectivity can strengthen the ‘social connectivity’ between distant communities—the web of social, cultural, institutional and economic relations that can connect distant locations and allow for the successful pursuit of shared conservation goals.”); see also Robert L. Fischman, *Leveraging Federal Land Use Plans into Landscape Conservation*, 6 GEO. WASH. J. ENERGY & ENVTL. L. 46, 51 (2016) (suggesting that unit-level federal management plans should consider both “the ecological and socio-economic connections that tie them together”).
82. Marra et al., *supra* note 81, at 348 (“Organizing around focused, shared conservation goals at the community level can build the political will for national or international conservation efforts, even where national interests might not allow for such cooperation.”).
83. See *supra* note 66 and accompanying text.
84. Fischman, *supra* note 81, at 47 (“[S]ocial systems operating around land reserves play an important role in the ability of individual units to achieve their goals. Ecosystem-based management requires collaborations that build strength through trust across jurisdictional boundaries.”).
85. Chasek, *supra* note 12, at 53.

fragmented landscapes,⁸⁶ what is new is that the corridors themselves may need to migrate,⁸⁷ contributing to the challenge.

In an era of shrinking public funds, acquisition of land in a migratory corridor seems unlikely. Even if there is money, it may be hard to rally public support for spending it on protecting migratory species when those expenditures “are aimed at avoiding an uncertain but feared outcome rather than solving an immediate problem,”⁸⁸ of which there are many. Alternatively, the imposition of stringent controls on activities in migratory corridors⁸⁹ may alienate and anger private landowners and local officials,⁹⁰ which relates to this Article’s proposal to use the public trust doctrine to preserve open migratory routes.

Regardless of the challenges, if wildlife are to survive the effects of climate change, then safe passage from areas that are no longer habitable must be secured. Accordingly, the next part of this Article turns to whether federal habitat protection laws or private land mechanisms can preserve land in migratory corridors for future occupation by wildlife.

III. RIGID FEDERAL LAWS AND INADEQUATE PRIVATE CONSERVATION MECHANISMS

*Climate change impacts are metamorphic and transformative.*⁹¹

Habitat loss and barriers to migration that impede the movement of wildlife mean that simply conserving migratory species will not preserve actual migrations.⁹² “[D]evelopment in the matrix surrounding public lands may block ecological processes and animal movements from one land unit to another. Climate change, in particular, raises the stakes for maintaining and restoring connectivity in order to promote resilience.”⁹³ To assure the survival of climate migrants, new habitats and corridors connecting those areas need to be protected. However, much of the land required for this effort is in private hands. This creates a problem because the scope of federal laws protecting public lands and wildlife is too limited to safeguard most climate mi-

86. Fischman & Hyman, *supra* note 79, at 213.

87. *Id.* at 214 (suggesting rolling easements for coastal habitat as sea levels rise as a useful template).

88. Yaffee, *supra* note 65, at 673.

89. Fischman & Hyman, *supra* note 79, at 213.

90. Fischman, *supra* note 81, at 52 (“Planning to act beyond federal land borders is controversial, particularly where neighbors resent the federal presence in the area.”).

91. Craig, *supra* note 7, at 30.

92. Fischman, *supra* note 56, at 278.

93. Fischman, *supra* note 81, at 51.

grants on private lands.⁹⁴ Private land conservation mechanisms similarly fall short in this regard.

A. Federal Lands and Federal Laws

While some species are able to adapt to changing conditions,⁹⁵ wildlife laws in the United States are not so adaptable.⁹⁶ The stress placed on natural systems by climate change is also stressing the responsive capacity of existing federal laws. The place- and species-based focus of these laws make it difficult to stretch their words to cover the changing environment, and the current dystopian political environment has made them almost impossible to modify.

Current federal public lands laws protect only lands that have been withdrawn by Congress generally for a specific purpose, like a national wildlife refuge or forest, and function only within their rigid geographic boundaries regardless of changing circumstances that may make the land within those boundaries less useful for their designated purpose.⁹⁷ The Endangered Species Act (ESA), which protects habitat that is critical to the survival of listed protected species,⁹⁸ is not sufficiently flexible to protect additional land as the original land becomes less critical for the species' survival. Habitat Conservation Plans (HCPs), which are a prerequisite to getting a permit to incidentally take an endangered species under section 10 of the ESA,⁹⁹ contain no assurances that new land will be protected once important habitat for

94. *Id.* at 47 (“Providing corridors for migration, or even more active translocations, generally necessitates planning over a span of elevations and latitudes that any single federal land unit seldom fully encompasses.”).

95. See Atwell et al., *supra* note 3, at 309 (saying, with respect to juncos, an observed instability in sex ratio between years suggests plasticity in junco migratory behavior and a possible adaptation to changing climate).

96. As examples of perhaps misplaced adaptability, Holly Doremus describes the various initiatives of the Babbitt Interior Department to lessen the controversiality of the ESA, such as “candidate conservation agreements,” no-surprises policy, and special rules issued under section 4(d) to lessen protections accorded to threatened species. See Holly Doremus, *Adaptive Management, the Endangered Species Act, and the Institutional Challenges of “New Age” Environmental Protection*, 41 WASHBURN L.J. 50, 60–61 (2001).

97. Jamison Colburn, *Habitat Reserve Problem-Solving: Desperately Seeking Intermediaries*, 41 ENVTL. L. 619, 629 (2011) (“The major federal public lands systems and the statutes governing them have been shaped to fit other priorities, and the potential connectivity between public lands as habitat is, as a rule, very low.”). But see Joseph L. Sax, *Helpless Giants: The National Parks and the Regulation of Private Land*, 75 MICH. L. REV. 239, 250–58 (1976) (arguing that the Property and Commerce Clauses gave the agencies constitutional authority to reach beyond their boundaries to regulate private lands).

98. 16 U.S.C. § 4(a)(3)(A)(i) (2012). Both the Secretaries of Interior and Agriculture have the authority to acquire lands to conserve fish, wildlife, and plants, including, but not limited to listed endangered or threatened species. 12 U.S.C. § 5.

99. Endangered Species Act of 1973, Pub. L. No. 93-205, § 10(a)(2), 16 U.S.C. § 1539(a)(2) (2012).

those species no longer serve their mitigation purposes. In a world of global climate change, it is entirely conceivable that land set aside as wildlife habitat in a section 10 HCP or as a national wildlife refuge could by mid-century no longer have any wildlife, let alone any suitable habitat.

Climate change will affect all our major public lands systems, including those with high value wildlife habitat. For example, sea level rise is expected to adversely affect 173 national wildlife refuges, sufficiently altering habitat in coastal refuges to separate wildlife from key habitats.¹⁰⁰ The U.S. Geological Survey is predicting that some of the biggest glaciers in Glacier National Park may be gone by 2030 and with them the species that are dependent on them.¹⁰¹ Climate change may exacerbate existing stressors like wildfires, droughts, and invasive species on Bureau of Land Management (BLM) lands, causing changes in management practices, for example forcing BLM to curtail livestock grazing to protect plants and wildlife stressed by drought.¹⁰² Yet as bad as these projected physical impacts of climate change are, the combination of the high level of uncertainty from the confounding and poorly understood variables involved in climate change and “the limited adaptive capacity of existing natural resource laws and management institutions” is even more worrisome.¹⁰³

Additionally problematic, most natural resources laws incorporate a preservation and restoration paradigm that is fundamentally at odds with the dynamic, unstable world we find ourselves in.¹⁰⁴ The laws governing national parks and wilderness areas, according to Camacho and Glicksman, are “rooted in historical and wilderness preservation goals that impair agencies’ ability to meet climate-related threats.”¹⁰⁵ Craig finds examples of the restoration paradigm in the goals of the ESA and in the requirements of section 404 of the Clean Water Act (CWA), and of the preservation paradigm in the movement towards an ecosystem management approach by public land managers to preserve ecosystem functions and services.¹⁰⁶ But, this new cli-

100. Alejandro E. Camacho and Robert L. Glicksman, *Legal Adaptive Capacity: How Program Goals and Processes Shape Federal Land Adaptation to Climate Change* 87 U. COLO. L. REV. 711, 740. In addition, “[p]erhaps the starkest quandary facing an agency subject to those constraints will be choosing between translocating endangered species to lands upon which they have never previously existed or presiding over species extinction.”). *Id.* at 823.

101. *Id.* at 740.

102. *Id.*

103. *Id.* at 741.

104. Craig, *supra* note 7, at 37 (“[A]lthough the dynamism/stationarity problem has been recognized, the law has not changed significantly to acknowledge it.”).

105. Camacho & Glicksman, *supra* note 100, at 816.

106. Craig, *supra* note 7, at 34. See also Camacho & Glicksman, *supra* note 100, at 720 (urging “changes in the substantive standards that govern federal land management to enhance legal adaptive capacity by placing greater emphasis on pro-

mate-driven world makes illusory the goal of returning to and then preserving any particular “historical ecological state of being,”¹⁰⁷ especially as climate change modifies baseline conditions.¹⁰⁸ To what exactly would the world be returning? Assumptions underlying both the preservation and restoration norms about the stability of natural systems have long been replaced by norms of instability.¹⁰⁹ According to Craig,

climate change-driven ecological transformations will almost certainly outpace natural dynamism in several respects—faster and greater accumulation of greenhouse gases than has ever occurred before; faster melting of polar ice and glaciers; more rapidly increasing air and water temperatures; abruptly changing air and ocean currents—with results that will be more dramatic and visible than “normal” ecosystem dynamics.¹¹⁰

Moreover, these paradigms erroneously assume the predictability and reversibility of human-caused ecological change regardless of the reasons for those changes.¹¹¹

The impacts of climate change are way beyond what little adaptive capacity federal natural resources laws have. Camacho and Glicksman talk about the need to have “a legal system characterized by significant substantive legal adaptive capacity” that may function better when circumstances are unanticipated or changing.¹¹² Yet, a “fundamental re-envisioning”¹¹³ of environmental and natural resources law seems unlikely because of the rigidity of the laws them-

moting ecological function on lands governed by the multiple-use mandate, and by detaching management goals from strict adherence to historical or wildness preservation where climate change is likely to render those goals ineffective at promoting ecological health”).

107. Craig, *supra* note 7, at 34 (“Like the restoration paradigm, the preservation paradigm incorporates an expectation that ecosystems are or should be stable and that managers can sustain one particular historical ecological state of being.”).
108. *Id.* at 35 (“Preserving natural resources implies an attempt to keep them in a particular state of being—another losing proposition as baseline conditions shift in response to climate change.”).
109. Hope M. Babcock, *Chumming on the Chesapeake Bay and Complexity Theory: Why the Precautionary Principle, Not Cost-Benefit Analysis, Makes More Sense as a Regulatory Approach*, 82 WASH. L. REV. 505, 526–29 (discussing how the bioeconomic model of the natural world has been replaced by principles of non-linearity and complexity).
110. Craig, *supra* note 7, at 36.
111. *Id.* 35.
112. Camacho & Glicksman, *supra* note 100, at 736 (“A regime that lacks such capacity is likely to sacrifice the potential to tailor decisions to changing conditions in ways that promote regulatory or management goals. Thus, a substantively adaptive system can reduce the risk that the quest for consistency leads to the application of fixed and bright-line rules to factual contexts for which they were not designed or are otherwise ill-matched.”).
113. Craig, *supra* note 7, at 30 (“Environmental and natural resources law in a climate change adaptation era require fundamental re-visioning, because both regulatory goals and the legal mechanisms for accomplishing them will have to be centered on the concept of change itself.”).

selves, constraining all but the most modest of expansions, and the low probability that Congress will enact new laws or even amend old ones in the current political environment.¹¹⁴

Even if federal natural resources laws were not so maladapted to the circumstances of climate change, the lands themselves offer too little acreage to safely house climate migrants—public land comprise only 28%, or 635–640 million acres, of the United States land base.¹¹⁵ The management regimes covering some of these lands reflect non-wildlife friendly priorities,¹¹⁶ like production of food and fiber, extraction of mineral resources, and the harvest of high value commercial timber. There are major jurisdictional gaps between agencies and between political divisions and taxonomical gaps between species, depending on their protected status,¹¹⁷ making the construction of a geographically continuous, uninterrupted migratory corridor difficult. While the ESA's programs to protect critical habitat and require habitat conservation plans apply to private lands, they are only triggered by the presence of listed species, which are a very small subset of the species that global climate change will affect.¹¹⁸

Federal lands do not offer a solution to the protection of migrating wildlife—the available land base is too small and is managed under laws with different goals. Federal natural resources laws, designed for another era when restoration and preservation were the dominant management goals and whose geographic boundaries are fixed by

114. Todd S. Aagaard, *Using Non-Environmental Law to Accomplish Environmental Objectives*, 30 J. LAND USE & ENVTL. L. 35 (2014) (“The current prolonged period of congressional impasse on environmental issues, in which symbolic ideological skirmishes have largely supplanted constructive engagement, makes clear that Congress is unlikely to generate progress on environmental issues any time soon.”).

115. The four largest landholders are United States Forest Service (USFS) in the U.S. Department of Agriculture (USDA), which manages nearly 193 million acres, the National Park Service (NPS), which manages approximately 80 million acres, the Bureau of Land Management (BLM), which manages nearly 248 million acres of land, and the Fish and Wildlife Service (FWS), which manages approximately 89 million acres of land. Additionally, Congress has designated 109 million acres federal lands wilderness under the Wilderness Act of 1964. See Camacho & Glicksman, *supra* note 100, at 714–15.

116. Colburn, *supra* note 97, at 629.

117. Fischman, *supra* note 56, at 283–34 (comparing marine mammals, which are comprehensively managed, and bats, which are not).

118. Fischman & Hyman, *supra* note 79, at 218 (“The ESA illustrates that some regulatory restrictions may spur habitat conservation planning that can secure habitat. Programs for endangered species protection offer landowners a range of inducements, but most comprehensive efforts to protect habitat on private lands begin with a prohibition or restriction that brings private landowners to the negotiating table. It may be necessary for the federal government to prod states and local governments to implement some restrictions as sticks to balance a program of carrots for securing habitat.”).

law,¹¹⁹ are ill-suited to the new problems and needs of a climate changing world. Indeed, if left unchanged, as is likely, federal natural resource law will increasingly become irrelevant.

B. Inadequate Private Conservation Mechanisms

Nearly 70% of the land in the United States is privately owned—in some states that number increases to 90%¹²⁰—and 80% of the species listed under the ESA use private land to some extent.¹²¹ So if wildlife are to be protected when their migratory routes take them across and onto private lands and federal laws, for the most part,¹²² do not reach private property, then private property mechanisms, like conservation easements, land trusts, and conservation land banks, might play a useful role in preserving land for climate migrants.¹²³ Unfortunately, the problems with these devices make them less useful for that purpose than one might hope.

Conservation easements are “non-possessory rights in land that have environmental purposes.”¹²⁴ They are a form of servitude that is intended to burden land in perpetuity.¹²⁵ Indeed, perpetual protection is “the cornerstone of conservation easements.”¹²⁶ Conservation easements usually contain restrictions on how land may be used and are often held by land trusts when they are associated with compensatory mitigation under section 404 of the CWA or section 10 of the ESA.¹²⁷ One of the pluses of conservation easements is that they are self-perpetuating, requiring no outside management interference and related administrative costs.¹²⁸

119. Sax comments that these boundaries were often “drawn according to no discernible principle (except for the obvious expedient of response to contending political forces), and thus some lands outside park boundaries seem at least as needful of federal regulation as many private inholdings.” Sax, *supra* note 97, at 264.

120. Whipps, *supra* note 12, at 565.

121. *Id.* at 565–66.

122. The exceptions to this statement are the ESA which contains provisions (Sections 4, 7, 9, and 10) that can affect and protect private lands, and section 404 of the Clean Water Act which protects wetland habitat. 16 U.S.C. §§ 1533, 1536, 1538, 1539 (2012); 33 U.S.C. § 1344(g)(1) (2012).

123. One form of environmental governance not examined in this Article is private contracting to manage landscape level resources. For those interested in that topic, see Karen Bradshaw Schulz & Dean Lueck, *Contracting for Control of Landscape-Level Resources*, 100 IOWA L. REV. 2507 (2015) (examining private contracting in the areas of wildfire, wildlife fisheries, underground resources, and scenic landscapes).

124. Jessica Owley, *The Increasing Privatization of Environmental Permitting*, 46 AKRON L. REV. 1091, 1114 (2013).

125. *Id.*

126. Jessica Owley, *Conservation Easements at the Climate Change Crossroads*, 74 LAW & CONTEMP. PROBS. 199 (2011).

127. Owley, *supra* note 124, at 1113–14.

128. Owley, *supra* note 126, at 201.

But projected landscape alterations from climate change pose serious problems for conservation easements, as they do for any property device that tries to preserve current land in perpetuity. Conservation easements can only ensure that the easement holder does not adversely affect the protected land, like drain a wetland, but cannot otherwise guarantee that the land will retain the values for which it was protected.¹²⁹ The effects of climate change on a specific plot of land covered by a conservation easement may create conflicts with that easement's purpose, if it is to protect habitat for certain wildlife species that are no longer there because climate change has made the habitat unsuitable, or with easement restrictions that prevent the introduction of new species which might be climate migrants fleeing the effect of climate change.¹³⁰ Since the essence of climate change is changed circumstance, the doctrine of "changed circumstances," which allows courts to terminate conservation easements when circumstances change,¹³¹ could lead to court-ordered termination of conservation easements almost at will, in situations where easements no longer protect land with any habitat value, undercutting any value the easement might otherwise have in protecting land for the long term. Climate change illustrates the absurdity of using a form of land protection, like conservation easements or for that matter federal land withdrawals, that is geared to be protect static "vignettes" of nature," when climate change can "rearrange[] nature on every level, from the smallest micro fauna and micro flora to entire continents such as Greenland."¹³²

Land trusts and conservation banks fare no better for many of the same reasons. There are more than 1,600 local land trusts across the country,¹³³ which administer conservation easements and other interests in land, and nearly that many conservation banks,¹³⁴ allowing

129. Owley, *supra* note 124, at 1115 n. 168.

130. Owley, *supra* note 126, at 205–08.

131. Kimbrell, *supra* note 6, at 127.

132. Olmsted, *supra* note 8, at 56; *see also* Whipps, *supra* note 12, at 575 ("The Shaw study found that '[e]stablishing a static network of connected reserves through acquisition or set-asides may not be effective in the future given ecological, economic, and social responses to climate change are likely to be nonlinear and multidirectional.'").

133. Jamison Colburn, *Habitat Restoration Problem Solving: Desperately Seeking Sophisticated Intermediaries*, 41 ENVTL. L. 619, 634 (2011) ("Land trusts are non-profit land conservation organizations," which often play a "role in overseeing conservation easements preservation compensatory mitigation lands."); *see also* Owley, *supra* note 124, at 1107. These conservation easements are entered into between landowners and land trusts "with minimal or absent government involvement and oversight." *Id.* at 1107.

134. As of January 2010, there were over 950 wetland and stream mitigation banks covering in excess of 960,000 acres. Owley, *supra* note 124, at 1108–09. As of January 2009, the FWS had approved over ninety conservation banks, covering over 9000 acres of wildlife habitat. *Id.* Mitigation banks "enable[] the conver-

the transfer of habitat credits to enable some form of development.¹³⁵ When a landowner conserves habitat for a species, the landowner can “market” the protected habitat as credits for other landowners who need to compensate for developing land elsewhere.¹³⁶ But, a fee simple reserve system, like what exists under a land trust or a conservation bank, makes little sense given the high likelihood that climate change may prompt protected wildlife to move to a new area not part of the original land trust or bank¹³⁷—the same problem that plagues conservation easements. Additionally, tax and property law create “a set of incentives that make large scale conservation difficult to coordinate in a decentralized fashion.”¹³⁸ This heightens the possibility that existing “ecological fragmentation” may be made worse by the “haphazard acquisition of conservation easements” by conservation banks.¹³⁹ “[E]ven the most impressive conservation acquisitions are always separated by still more unprotected land that is fragmented in ownership.”¹⁴⁰

Thus, a conservation banking system, like land trusts or lands protected by conservation easements, may even in the best of circumstance—and these are not the best—create ecological islands of remnant populations that may be unable to rejoin or move with larger populations of their species.¹⁴¹ Once a transaction setting up a conservation bank is completed, it cannot be undone or redone, and the value of credits cannot be reset. So if land in a conservation bank becomes less valuable for wildlife due to climate change or management strategies change, no changes can be made in the bank’s terms nor can

sion of thousands of acres of wetlands and endangered species habitats, facilitating development of those lands.” *Id.* at 1110.

135. There are at least two types of conservation banks—mitigation banks which provide for replacement of lost wetland values prior to their destruction and habitat conservation banks which protect habitat for listed and threatened endangered species. *Id.* at 1108.
136. Kimbrell, *supra* note 6, at 125. Although the FWS, which oversees conservation banks under the ESA, requires that conservation banks have a sufficiently capitalized endowment to assure that the management plan for the bank can continue in perpetuity, *id.* at 125–26, this requirement may be of little help when the land covered by the endowment are no longer useful.
137. Whipps, *supra* note 12, at 562. Colburn also complains that the activities of land trusts are shrouded in secrecy and under the scrutiny of the IRS, which inhibits any creativity that might otherwise be possible. Colburn, *supra* note 97, at 640 (“[T]he more [the] IRS invests in monitoring and enforcing its rules on ‘qualified’ conservation contributions, the more it chills the very sort of experimentation and problem solving we need most.”); *id.* at 641 (“Because of their complexity, the tax code and IRS regulations cast a shadow over innovations in conservation dealmaking.”).
138. Fischman, *supra* note 56, at 285.
139. *Id.*
140. Colburn, *supra* note 97, at 637.
141. Whipps, *supra* note 12, at 575.

a holder of bank credits be required to purchase any additional credits.¹⁴² While the rigidity in credit values assures predictable credit prices, making investment in the bank less risky for bankers and credit holders,¹⁴³ “[t]his resistance to change may not adequately conserve climate-sensitive species”¹⁴⁴ when the value of credits covering existing habitat plunges because the species has moved on.¹⁴⁵

In an era of climate change, wildlife habitat may well be irreversibly modified in the next century, even half century, “let alone in the duration imagined by the artificial concept of ownership in perpetuity.”¹⁴⁶ In this world,

conservation banks would externalize all conservation costs that must occur outside of the bank’s boundaries when bank species move off bank habitat. Every acre of bank land originally intended for perpetual conservation that can no longer be used by the species is bank value lost. Every new acre enlisted outside of the bank that must add protective measures for listed species due to species movement is a cost for which the conservation banking system does not account.¹⁴⁷

Requiring conservation banks to follow “species that are dispersing in several directions,” in unpredictable and uncertain ways, may quickly make conservation banks prohibitively expensive for bankers.¹⁴⁸

There are also privacy concerns that lead many landowners to resist participating in any form of land preservation system like a conservation bank or land trust, if it requires, as most do, regular inspections to see if the land is being properly preserved.¹⁴⁹ These concerns make these systems less attractive to private landholders as ways to protect habitat for climate migrants. Conservation banks also rely heavily on private actors to carry out what are actually “public

142. *Id.* at 573. *But see* Kimbrell, *supra* note 6, at 147–48 (proposing a “stepping stone” approach, which would require that if a listed species goes locally extinct in a conservation bank, the conservation bank owner must buy land where the species currently exists and must either create a conservation easement for those new lands, or buy credits for that species in another conservation bank where the species currently exists).

143. Whipps, *supra* note 12, at 573.

144. *Id.* at 573; *see also id.* at 573–74 (noting the reason for this rigidity is to establish predictable credit prices, giving both land bankers and permittees sufficient security to make the investment).

145. Kimbrell, *supra* note 6, at 120 (“However, if the species migrates away from the conservation bank land due to climate change or some other ecological interaction, then developers are developing land but the species is not being protected in the long-term.”). For criticisms of conservation banks, *see id.* at 129–30 (discussing the problem of double-dipping by improperly stacking banks and unanticipated ecological interactions among populations of protected species).

146. Whipps, *supra* note 12, at 574.

147. *Id.*

148. *Id.* at 586.

149. *Id.* at 585 (describing landowner concerns lest violations of federal laws protecting species be discovered and general resistance to the idea of having strangers on one’s land).

permitting programs,” raising serious accountability, oversight, and enforcement concerns.¹⁵⁰ These private actors also have significant control over how land in a bank is managed and what land is actually protected.¹⁵¹ There are no laws, regulations, or agency guidance governing the management of land trusts or conservation banks, nothing requiring expertise or experience, let alone monitoring of performance.¹⁵² Private actors are more likely to be motivated by the desire to run a profitable business and “may be more focused on things like maximizing profits, making donors happy, and maintaining amiable relations with neighbors,”¹⁵³ none of which has anything to do with maintaining the conservation values of the protected land.

This Part of the Article has revealed the shortcomings of federal lands and the laws protecting them as well as of private land conservation tools that might otherwise protect wildlife species as they migrate across private land to avoid the effects of climate change. The next Part of the Article discusses whether the common law public trust doctrine might perform any better.

IV. THE PUBLIC TRUST DOCTRINE AND A FEDERAL TRUST IN WILDLIFE

*The public trust doctrine is rooted in the precept that some resources are so central to the well-being of the community that they must be protected by distinctive, judge-made principles. This is an accepted process in our law: Anglo-American jurisprudence is rife with judicially developed doctrines that reflect the deeply held convictions of our society.*¹⁵⁴

Given the speed with which the natural environment is transforming itself in response to climate change, the sooner legal regimes can adapt to this new “world of triage, best guesses, and shifting sands,” the better.¹⁵⁵ We need new approaches about how to think about natural resources law and a “new legal framework that will allow a multiplicity of techniques to be brought to bear in crafting adaptation responses to particular local impacts while still promoting actions consistent with overall ecological and social goals.”¹⁵⁶ The public trust

150. Owley, *The Increasing Privatization*, *supra* note 124, at 1112; *see id.* at 1125 (discussing the “high rate of noncompliance” with mitigation bank mitigation plans and limited long-term monitoring of mitigation projects).

151. *Id.* at 1113.

152. *Id.* at 1124.

153. *Id.* at 1121.

154. Wilkinson, *supra* note 1, at 315.

155. Craig, *supra* note 7, at 16.

156. *Id.* at 16–17; *see also* Aagaard, *supra* note 114, at 37 (discussing Professor Donald Elliott’s solution to the legislative logjam calling for “portage strategies . . . law-making techniques for adapting environmental policy to new problems and

doctrine, although an old legal framework, might fill the gaps in or supplement the existing public and private legal regimes described in Part II to make them more effective at protecting private lands for use by migrating wildlife fleeing from the effects of climate change.¹⁵⁷

A. The Public Trust Doctrine

The common law doctrine of public trust is based on the proposition that the sovereign holds certain common properties in trust in perpetuity for the free and unimpeded use of the general public.¹⁵⁸

changing realities without legislation in an era in which Congress is paralyzed"). Aagaard's solution to the current legislative impasse is not administrative lawmaking, but rather "employing non-environmental statutes to accomplish environmental objectives." *Id.* at 38.

157. Patrick Redmond, *The Public Trust in Wildlife: Two Steps Forward, Two Steps Back*, 49 NAT. RESOURCES J. 249, 306 (2009) ("[Courts] generally resort to glances at the common law to 'fill gaps' in regulatory concepts or definitions, to address special harms suffered by particular individuals or communities, or to allow recovery of damages."). Professor Mary Wood has developed this argument in the context of global climate change, arguing that there is a federal trust enforceable against the government for failing to take steps to reduce emissions of greenhouse gases. See Mary Christina Wood & Dan Gilpern, *Atmospheric Recovery Litigation: Making the Fossil Fuel Industry Pay to Restore a Viable Climate System*, 45 ENVTL. L. 259 (2015) (employing an atmospheric public trust approach to establish a framework of global responsibility); Mary Christina Wood, "You Can't Negotiate with a Beetle": *Environmental Law for the New Ecological Age*, 50 NAT. RESOURCES J. 167, 201 (2010) [hereinafter Wood, *New Ecological Age*]; Mary Christina Wood, *Advancing the Sovereign Trust of Government to Safeguard the Environment for Present and Future Generations (Part 1): Ecological Realism and the Need for a Paradigm Shift*, 39 ENVTL. L. 43 (2009) (calling for the public trust doctrine to be expanded to system of protection for natural resources against threats of climate change and ecological collapse); MICHAEL C. BLUMM & MARY CHRISTINA WOOD, *THE PUBLIC TRUST DOCTRINE IN ENVIRONMENTAL AND NATURAL RESOURCES LAW* (2013). Professor Wood has also launched an ambitious litigation initiative to compel the EPA to reduce greenhouse gas emissions. See *Alec L. v. Jackson*, 863 F. Supp. 2d 11, 17 (D.D.C. 2012) (dismissing claim against EPA Administrator for failing to protect the atmosphere under the public trust doctrine for failing to state a claim because since that claim is grounded in state law it does not raise a federal question), *aff'd sub nom.* *Alec L. v. McCarthy ex rel. Looz*, 561 Fed. App'x 7 (D.C. Cir. 2014), *cert. denied*, 135 S.Ct. 774 (2014); see also Mary Christina Wood, *Atmospheric Trust Litigation*, in CLIMATE CHANGE READER 4–6 (W.H. Rodgers, Jr. & M. Robinson-Dorn eds., 2009), <https://law.uoregon.edu/images/uploads/entries/atmo.pdf> [<https://perma.unl.edu/KZ8G-AGUC>]; Mary Christina Wood, *The Planet on the Docket: Atmospheric Trust Litigation to Protect Earth's Climate System and Habitability*, 9 FLA. A&M U. L. REV. 259 (2014) (explaining her legal approach).
158. See Carol M. Rose, *Joseph Sax and the Idea of the Public Trust*, 25 ECOLOGY L. Q. 351, 351 (1998) ("Until it was revived and re-invented by Sax, the doctrine held that some resources, particularly lands beneath navigable waters or washed by the tides, are either inherently the property of the public at large, or are at least subject to a kind of inherent easement for certain public purposes. Those purposes are foremost navigation and travel, to a lesser extent fishing, and lesser still recreation and public gatherings.").

The government in essence is merely a usufructuary rights holder who cannot allow resources protected by the trust to be damaged.¹⁵⁹ “The public trust doctrine is a ‘principle of vital importance’ that refers to the general fiduciary obligation of government toward its citizens, and to the related, fundamental understanding that no legislature can abdicate or irrevocably alienate its core sovereign powers.”¹⁶⁰ The doctrine requires that property to which the trust applies must be used for a public purpose and must be available to public use, that trust-protected property cannot be sold, even for a fair price, and that the holder of trust-protected property must maintain it for particular uses like for recreation or wildlife habitat.¹⁶¹ The doctrine protects public rights in trust resources in perpetuity and prevents the government or private individuals from alienating or otherwise adversely affecting those rights unless for another equivalent public purpose.¹⁶²

The doctrine places on governments “an affirmative, ongoing duty to safeguard the long-term preservation of those resources for the benefit of the general public.”¹⁶³ This makes the doctrine “a fundamental limitation on governmental power,”¹⁶⁴ the beneficiaries of which are

-
159. Gerald Torres & Nathan Bellinger, *The Public Trust: The Law's DNA*, 4 WAKE FOREST J.L. & POL'Y 281, 287 (2014); see also *id.* at 288 (“The public trust doctrine embodies this idea that every generation has a usufructuary right in the resources of the Earth, and those interests are protected by the inherently limited ownership allowed in natural resources.”); Coplan, *supra* note 5, at 324 (“[R]eference to usufructuary rights suggests that, although the state may allocate the sustainable fruits of public trust assets, it may not allocate rights in the underlying resource itself. To put the matter in conventional trust terms—the sovereign, as trustee, may distribute the income of public trust assets, but may not sell off the corpus.”).
 160. Torres & Bellinger, *supra* note 159, at 286 (quoting *Butchers' Union Co. v. Crescent City Co.*, 111 U.S. 746, 766 (1884)).
 161. Sax, *supra* note 4, at 477.
 162. Hope M. Babcock, *Should Lucas v. South Carolina Coastal Council Protect Where the Wild Things Are? Of Beavers, Bob-O-Links, and Other Things that Go Bump in the Night*, 85 IOWA L. REV. 849, 889–98 (2000) (summarizing salient aspects of the public trust doctrine); see also Torres & Bellinger, *supra* note 60, at 286 (“The public trust doctrine is meant to protect those resources that have an inherently public character and are not owned in the same way as traditional property.”); Mary Christina Wood, *Protecting the Wildlife Trust: A Reinterpretation of Section 7 of the Endangered Species Act*, 34 ENVTL. L. 605, 612 (2004) (“[G]overnment trustees are required to preserve wildlife assets and protect them against damage.”).
 163. Richard M. Frank, *The Public Trust Doctrine: Assessing Its Recent Past & Charting Its Future*, 45 U.C. DAVIS L. REV. 665, 667 (2012); see also J. Peter Byrne, *The Public Trust Doctrine, Legislation, and Green Property: A Future Convergence?*, 45 U.C. DAVIS L. REV. 915, 918 (2012) (“Public trust rights are understood to precede and constrain legislative action to a larger extent than do private property rights.”).
 164. Wood, *New Ecological Age*, *supra* note 157, at 201; see also Wood, *supra* note 162, at 612 (this capacity to “constrain the natural tendency of governmental officials

“present and future generations of citizens.”¹⁶⁵ The essence of the doctrine requires management of trust resources for public benefit, not for private gain or political advantage.¹⁶⁶

The fact that the public trust doctrine is a restraint on how private property can be used makes it extremely controversial.¹⁶⁷ “Imposing highly concentrated costs of habitat protection on a small number of landowners in order to provide a broad public environmental benefit is a recipe for backlash.”¹⁶⁸ According to Jamison Colburn, “[t]he problem is not that our federalism or anything else in our Constitution deprives us of the authority needed to build larger or more integrated systems of public reserves,” rather that the American land ethic has remained basically possessory and divisionary in nature.”¹⁶⁹ The public trust doctrine is in fundamental tension with this core belief. But a right to real property:

“is not absolute, [it is] a maxim of the common law that one should . . . use his property” in a way that does not “injure the rights of others.” This maxim expresses “the inevitable proposition that rights are relative . . . and must be [accommodating] when they meet. . . . [W]hile society will protect the owner in his permissible interests in land, yet [s]uch an owner must expect to find the absoluteness of his property rights curtailed by the organs of society, for the promotion of the best interests of others for whom these organs also operate as protective agencies. . . . [property] “serves human values [and is] recognized to that end.”¹⁷⁰

Indeed, common law property doctrines, like the public trust doctrine, have “evolved into a law of accommodation”—evolving in response to

to exhaust resources in the present generation” acts like “a normative anchor . . . geared towards sustaining society for generations to come”).

165. Wood, *New Ecological Age*, *supra* note 157, at 201.

166. *Id.* at 201; *see also* Lynn S. Shaffer, *Pulled From Thin Air: The (Mis)Application of Statutory Displacement to a Public Trust Claim In Alec L. v. Jackson*, 19 LEWIS & CLARK L. REV. 169, 192 (2015) (“The limits placed on the sovereign body represent the true power of the trust, especially when the government violates fiduciary duties to protect trust property from impairment, damage, or waste.”).

167. Fischman & Hyman, *supra* note 79, at 218 (“[T]he application of constraints on private land use, like those remains among the very most controversial aspects of federal environmental law.”); *see also* Lloyd R. Cohen, *The Public Trust Doctrine: An Economic Perspective*, 29 CAL. W. L. REV. 239, 275 (1992) (“Any body of law will be fuzzy around the edges; that [cannot] be helped. But the notion of an evolving unbounded set of communal rights—whether they are constitutional or common law, procedural or substantive, in all public and private property strips clarity, certainty, and predictability from the very core of the public trust doctrine.”) (quoted in George P. Smith II & Michael W. Sweeney, *The Public Trust Doctrine and Natural Law: Emanations Within a Penumbra*, 33 B.C. ENVTL. AFF. L. REV. 307, 327–38 (2006)).

168. Fischman & Hyman, *supra* note 79, at 226.

169. Colburn, *supra* note 133, at 654.

170. *State v. Shack*, 277 A.2d 369, 372–73 (N.J. 1971).

societal needs and efficiency.¹⁷¹ While property rules protect the expectations of property owners, “those expectations are bounded by what a state chooses to recognize as entitled to protection.”¹⁷² In other words, “while there are some bedrock principles that protect property, those same principles are not etched in that bedrock. Instead, as human needs change so do property rights. Communities created property and communities can curtail it.”¹⁷³ Indeed, humanity’s adaption to the effects of climate change could become a matter of global survival, warranting a “rebalancing of public and private interests,”¹⁷⁴ toward a less individualistic view of property. Craig argues that the threat of climate change should by itself “be sufficient to prompt revitalized legal attention to the public and community values of private property and to the legal doctrines that give cognizance to those values: nuisance, the public trust doctrine, and public necessity.”¹⁷⁵

The public trust doctrine has been part of American jurisprudence for centuries.¹⁷⁶ Something like the public trust doctrine was referenced in Article III of the 1783 Peace Treaty between Britain and the United States ending the Revolutionary War, in which the parties “agreed that the People of the United States shall continue to enjoy unmolested the Right to take Fish” at various identified spots and “also on the Coasts, Bays & Creeks of all other of his Britannic Majesty’s Dominions in America”¹⁷⁷ And, while the Massachusetts Bay Colony’s Ordinances of 1641–1647 bestowed on riparian landowners the right to build structures below the high water mark on tidal waters, it explicitly withheld “the public trust right of the public to cross such underwater lands for navigation, fishing, and fowling.”¹⁷⁸ Later, the Northwest Ordinance stated that the Mississippi and St. Lawrence Rivers should be “common highways, and forever free,” re-

171. Shelby D. Green, *No Entry to the Public Lands: Towards a Theory of a Public Trust Servitude for a Way Over Abutting Private Land*, 14 WY. L. REV. 19, 58 (2014).

172. *Id.* at 74.

173. *Id.*

174. Craig, *supra* note 7, at 62.

175. *Id.* at 63.

176. *Arnold v. Mundy*, 6 N.J.L. 1 (1821) (affirming state holds submerged lands in trust for people of the state); *see also* *Martin v. Waddell’s Lessee*, 41 U.S. (16 Pet.) 367, 413–14 (1842) (“[F]rom 1702 . . . until a very recent date, the people of New Jersey have exercised and enjoyed the rights of fishery for shellfish and floating fish, as a common and undoubted right”); Michael C. Blumm & Aurora Paulsen, *The Public Trust in Wildlife*, 2013 UTAH L. REV. 1437, 1441–1451 (2013) (describing the evolution of the American public trust doctrine).

177. *Definitive Treaty of Peace Between the United States of America and His Britannic Majesty, Gr. Brit.–U.S.*, art. III, Sept. 30, 1783, 8 Stat. 80 [hereinafter *Treaty of Paris*].

178. Coplan, *supra* note 5, at 305.

flecting public trust principles of open access.¹⁷⁹ Some scholars contend that the public trust doctrine is an “inherent right[] that predates the United States Constitution,” functioning like “the chalkboard on which the Constitution was written,” and that the doctrine provides “the background and context for the Constitution” itself.¹⁸⁰

One feature of common law doctrines is their inherent nimbleness, surpassing both statutes and executive orders in that regard.¹⁸¹ The public trust doctrine has illustrated this malleability by evolving over time to meet changing social circumstances.¹⁸² Courts originally applied the doctrine to traditional uses of coastal resources and tidelands—like navigation, fishing, and oystering—but now the doctrine is applied to lakes,¹⁸³ beaches,¹⁸⁴ groundwater,¹⁸⁵ and even moun-

179. *Id.*

180. Torres & Bellinger, *supra* note 159, at 288; *see also id.* at 289 (“In *Robinson Township v. Commonwealth*, the Court stated: ‘[T]he concept that certain rights are inherent to mankind, and thus secured rather than bestowed by the Constitution, has a long pedigree in Pennsylvania that goes back at least to the founding of the Republic.’”) (citing *Robinson Twp. v. Commonwealth*, 83 A.3d 901, 946–50 (Pa. 2013) (plurality opinion)).

181. Camacho & Glicksman, *supra* note 100, at 729–30 (“The Anglo-American common law system, for example, is in some ways more procedurally adaptive than the legislative process. A common law court has the capacity to distinguish previous cases when addressing new factual circumstances. If Congress wants to amend a statute to address a new situation not covered by existing law, or because changed circumstances have undercut the effectiveness of existing law, it must follow the constitutionally prescribed method for changing the law—adoption of the same bill by both houses of Congress and either presidential signature or legislative override of a presidential veto by a two-thirds vote.”); *see also* J.B. Ruhl, *General Design Principles for Resilience and Adaptive Capacity in Legal Systems—With Applications to Climate Change Adaptation*, 77 N.C. L. REV. 1373, 1381 (2011) (describing the American common law system as “an example of ecological resilience” with “a high capacity for swings in behavior in response to changing conditions without altering the system’s basic structure and process design”); Valentine, *supra* note 10, at 103–04 (describing Congress’s hostile attitude toward climate change as “demonstrating a profound disconnect between scientific knowledge and the public perception about the risk of highly damaging impacts of climate change,” and faulting the inadequate efforts by the executive branch “to meet the scope of the challenge presented by climate change”).

182. *See* Blumm & Paulsen, *supra* note 176, at 1443–51 (citing cases illustrating doctrine’s expansion to cover more natural resources in response to public needs); *see also* Coplan, *supra* note 5, at 321 (“As civilization exercises increasing dominion over the Justinian list of trust assets, the law has developed to enforce societal expectations in the commonality and permanence of these public resources.”); E. Donald Elliott, *The Evolutionary Tradition in Jurisprudence*, 85 COLUM. L. REV. 38, 51 (1985) (referring to Justice Holmes’s “claim that legal doctrines evolve in response to changes in the social environment has become virtually a canon of professional faith for American lawyers”).

183. *Nat’l Audubon Soc’y v. Superior Court (Mono Lake)*, 658 P.2d 709 (Cal. 1983), *cert. denied sub nom. City of L.A. Dep’t of Water & Power v. Nat’l Audubon Soc’y*, 464 U.S. 997.

184. *Matthews v. Bay Head Improvement Ass’n*, 471 A.2d 355 (N.J. 1984).

tains,¹⁸⁶ and is used to protect non-traditional uses of trust resources like recreation, scientific study, bird watching, and aesthetics.¹⁸⁷

185. *Envtl. Law Found. v. State Water Res. Control Bd.*, Case No. 34-2010-80000583 (Cal. Super. Ct. July 15, 2014); *see also* *Cty. of Siskiyou v. Superior Court of Sacramento Cty.*, No. S220764 (Cal. Feb. 18, 2015) (denying petition for writ of mandate allowing it to skip intermediate review by state court of appeals); *In re Water Use Permit Applications*, 9 P.3d 409, 445 (Haw. 2000) (holding public trust doctrine applies to groundwater).
186. Although the decision in *Gould v. Greylock Reservation Comm'n*, 350 Ma. 410, 215 N.E.2d 114 (1966), applying the public trust doctrine to the expansion of a ski resort on a mountain top, was issued four years before Sax's article and, therefore, his article cannot claim to have influenced it, he thought the decision was particularly important in understanding the broader importance of the public trust doctrine because the decision reflected a use of the doctrine to democratize the administrative process by placing on administrative agencies "the burden of establishing an affirmative case before the legislature in the full light of public attention." Sax, *supra* note 4, at 499; *see also id.* at 498 ("That state's supreme judicial court has penetrated one of the very difficult problems of American government—inequality of access to, and influence over, administrative agencies. It has struck directly at low-visibility decision making, which is the most pervasive manifestation of the problem. By a simple but ingenious flick of the doctrinal wrist, the court has forced agencies to bear the burden of obtaining specific, overt approval of efforts to invade the public trust.").
187. *See, e.g., Marks v. Whitney*, 491 P.2d 374, 380 (Cal. 1971) (finding that the public trust doctrine applied to collection of scientific information, bird watching, and aesthetics); *Lamprey v. Metcalf*, 53 N.W. 1139, 1143 (Minn. 1893) (recognizing recreational uses as within the scope of the public trust doctrine); *Borough of Neptune City v. Borough of Avon-by-the-Sea*, 294 A.2d 47, 54 (N.J. 1972) (applying the public trust doctrine to recreational uses). Not surprisingly, the doctrine's expansion drew critics. *See* William D. Araiza, *Democracy, Distrust, and the Public Trust: Process-Based Constitutional Theory, the Public Trust Doctrine, and the Search for a Substantive Environmental Value*, 45 UCLA L. REV. 385, 402–03 (1997) (worrying that expansion of the doctrine made more acute its undemocratic nature, the freedom it gives nonexpert courts to second guess administrative decisions on complex, highly technical matters, and the danger that courts will denigrate private property rights in favor of public trust uses); James L. Huffman, *Speaking of Inconvenient Truths—A History of the Public Trust Doctrine*, 18 DUKE ENVTL. L. & POL'Y F. 1, 8–9 (2007) (debunking popular historical account of the doctrine's origins and migration to the United States); Richard J. Lazarus, *Changing Conceptions of Property and Sovereignty in Natural Resources: Questioning the Public Trust Doctrine*, 71 IOWA L. REV. 631, 631–33 (1986) (complaining the doctrine was the equivalent of an oxymoron in an age of environmental protection laws and saying "the historical function of the public trust doctrine has been to provide a public property basis for resisting the exercise of private property rights in natural resources deemed contrary to the public interest. In recent decades, however . . . modern trends in natural resources law increasingly have eroded traditional concepts of private property rights in natural resources and substituted new notions of sovereign power over these resources. These trends . . . are currently weaving a new fabric for natural resources law that is more responsive to current social values and the physical characteristics of the resources. By continuing to resist a legal system that is otherwise being abandoned, the public trust doctrine obscures analysis and renders more difficult the important process of reworking natural resources law."); *see also* James L. Huffman, *A Fish Out of Water: The Public Trust Doctrine in a*

“While such evolutions and expansions complicate the identity—indeed, the very existence—of any unitary, national, perhaps Constitution-based public trust doctrine, they also provide place-based balancing of public and private needs and values . . . that may better serve the long-term interests of the nation as a whole.”¹⁸⁸

This is not to say that there are not disadvantages with adaptive legal systems, like the common law doctrine of public trust. A less adaptive legal system may result in more consistent application of legal rules by decision makers, with results that are more fair, predictable, coherent, and certain.¹⁸⁹ Certainty can encourage investment in and advance commitment to certain outcomes.¹⁹⁰ Non-adaptive systems may be administered more efficiently because decision makers, like agencies, do not have to invent new approaches on an ad hoc basis to each problem, but get to choose from a limited number of prescribed and pre-tested solutions.¹⁹¹ In contrast, adaptive systems create implementation and opportunity costs.¹⁹² “[S]ubstantive legal adaptive capacity also may increase the risk that agencies will abuse their discretionary authority,” perhaps even favoring special interests over the broader interests of the general public.¹⁹³ “Statutory constraints on substantive flexibility can minimize such ‘slippage.’”¹⁹⁴ Nonetheless, over the centuries the public trust doctrine has played a useful role in protecting natural resources, including nontraditional trust resources, which belong to and are used by the public in nontraditional ways. This fact alone makes it of interest here.

B. Strong Federal Interest in Wildlife

A variant of the public trust doctrine is a public trust in wildlife.¹⁹⁵ However, the doctrine is not on as strong a footing as the public trust

Constitutional Democracy, 19 ENVTL. L. 527 (1989) (criticizing judicial expansion of public trust doctrine); Carol Rose, *The Comedy of the Commons: Custom, Commerce, and Inherently Public Property*, 53 U. CHI. L. REV. 711, 722 (1986) (“Despite its popularity, the modern public trust doctrine is notoriously vague as to its own subject matter; cases and academic commentaries normally fall back on the generality that the content of the public trust is ‘flexible’ in response to ‘changing public needs.’”).

188. Robin Kundis Craig, *A Comparative Guide to the Western States’ Public Trust Doctrines: Public Values, Private Rights, and the Evolution Toward an Ecological Public Trust*, 37 ECOLOGY L.Q. 53, 92 (2010).

189. Camacho & Glicksman, *supra* note 100, at 735.

190. *Id.* at 736.

191. *Id.*

192. *Id.* at 737.

193. *Id.* at 736.

194. *Id.*

195. Joining the public trust doctrine to other doctrines is not that unusual. See, e.g., David Takacs, *The Public Trust Doctrine, Environmental Human Rights, and the Future of Private Property*, 16 N.Y.U. ENVTL. L.J. 711, 711–13 (2008) (proposing a

doctrine,¹⁹⁶ even in those jurisdictions that accept the public trust doctrine.¹⁹⁷ “[T]he path to judicial recognition of the public trust in wildlife has not been smooth. Indeed, this path has been . . . criss-crossed and rutted with competing doctrines of constitutional limitations, property rights, and statutory and agency mandates.”¹⁹⁸ On the other hand, some legal scholars, like Professors Michael Blumm and Patrick Redmond, believe that courts are moving to blend the two doctrines at the state level creating not only a duty on the state sovereign to protect wildlife and wildlife habitat, but also a duty to recognize a public right to enforce that duty.¹⁹⁹ Professor Redmond, for example, describes how California courts allow public and private lawsuits alleging that the government or individuals have not sufficiently protected wildlife “as both a public trust *purpose* and a public trust *resource* within the doctrine’s scope.”²⁰⁰ He notes in addition that Michigan includes wildlife within its public trust doctrine,²⁰¹ and Wisconsin courts consider it to be a well-established principle that the state holds title to wildlife for the benefit of its citizens, even though the state’s courts have never found that wildlife is covered by the public trust doctrine and consider the doctrine to only extend to navigable waterways.²⁰²

synthesis of the public trust doctrine and human rights in response to climate change and other modern environmental issues) (cited in Reed Watson, *Public Wildlife on Private Land: Unifying the Split Estate to Enhance Trust Resources*, 23 DUKE ENVTL. L. & POL’Y F. 291, 294 n.20 (2013)).

196. State ownership of wildlife is less contested than acknowledging the sovereign’s trust responsibilities over wildlife. See Blumm & Paulsen, *supra* note 176, at 1451 (“[D]espite some confusion about the viability of the *Geer* decision, state ownership of wildlife in a sovereign capacity is overwhelmingly the majority view.”).
197. *Id.* at 257; see also *id.* at 310 (“As one front in the effort toward a ‘new ethical framework’ for environmental decision-making, then, an expanded public trust in wildlife has recently suffered as many defeats as it has enjoyed victories.”).
198. *Id.* at 304; see Watson, *supra* note 195, at 299–300 n.42 (saying after the Idaho Supreme Court found that the public trust doctrine applied to wildlife in *Kootenai Env’tl. Alliance, Inc. v. Panhandle Yacht Club*, 671 P. 2d 1085 (Idaho 1983), the Idaho legislature passed a law declaring that Idaho’s public trust doctrine was “solely a limitation on the power of the state to alienate or encumber the title to the beds of navigable waters.”).
199. See Blumm & Paulsen, *supra* note 176, at 1488 (“Given the states’ widespread statutory and constitutional recognition of the wildlife trust, it is likely that more courts will soon recognize that state ownership of wildlife is part of the public trust doctrine, thus imposing duties and empowering states to ensure wise stewardship of wild animals and their habitats.”).
200. Redmond, *supra* note 157, at 271.
201. *Id.* at 276.
202. *Id.* at 283; see *id.* at 288 (observing that “Wisconsin courts have declined to find within evolving societal values or the state’s Environmental Protection Act a reason to expand the trust’s scope to include wildlife or natural resources in general”).

Even though there are two cases in which federal courts have arguably found that there is a federal public trust interest in wildlife,²⁰³ that argument does not need to be made here. Confusion at the state level over the existence of a trust over wildlife, whether as part of the public trust doctrine or a free-standing trust, does not diminish the federal government's strong sovereign interest in and authority over wildlife that resides on or temporarily moves off of federal lands. The wellspring of this sovereign interest originally resided in the King of England, like the public trust doctrine, and, like the public trust doctrine, became part of American legal culture in the nineteenth century.²⁰⁴

Justice Holmes in *Missouri v. Holland* declared the interest of the United States in the protection of wild birds to be "a national interest of very nearly the first magnitude."²⁰⁵ He added that he saw "nothing in the Constitution that compels the Government to sit by while a food supply is cut off and the protectors of our forests and our crops are destroyed," and that it was "not sufficient to rely upon the states" to protect such important resources.²⁰⁶ The federal interest in wildlife has repeatedly preempted the state interest in wildlife when the latter interest conflicted with the interest of the United States. For example, in *Kleppe v. New Mexico*,²⁰⁷ the Supreme Court found the federal interest in the wellbeing of wild burros under the Property Clause sufficient to prevent a private rancher from removing them from federal lands.²⁰⁸ Although the *Kleppe* Court refused to speculate on whether

203. *In re Steuart Transportation Co.*, 495 F. Supp. 38 (E.D. Va. 1980) (finding that both the federal government and the Commonwealth of Virginia had a trust interest in wildlife, which allowed both jurisdictions to bring a lawsuit seeking penalties and cost recovery against an oil tanker for the deaths of thousands of migratory birds, and saying "under the public trust doctrine, the State of Virginia and the United States have the right and the duty to protect and preserve the public's interest in natural wildlife resources."); *State v. Sorensen*, 436 N.W.2d 358, 362 (Iowa 1989) (second alteration in the original) (referring to a Nebraska court that opined the federal government holds the nation's natural resources in trust entitling it to recover for the loss of wildlife from a fire allegedly caused by a private railroad company).

204. See generally Blumm & Paulsen, *supra* note 176 (describing the evolution of the concept of sovereign ownership of wildlife and suggesting its merger with the public trust doctrine); see also Hope M. Babcock, *supra* note 162, 880–89 (discussing adoption of the English view of Crown authority over wildlife and the state wildlife trust doctrine).

205. *Missouri v. Holland*, 252 U.S. 416, 435 (1920).

206. *Id.*

207. 426 U.S. 529, 529 (1976) (acknowledging the state's police power over wildlife in their jurisdiction, but found that this authority was subordinate to the powers of the federal government over wild burros on federal lands).

208. See also *Wyoming v. United States*, 279 F.3d 1214, 1227 (10th Cir. 2002) (quoting *Kleppe*, 425 U.S. at 540–41) (interpreting the "complete power that Congress has over public lands" as "necessarily" including "the power to regulate and protect the wildlife living there").

the Property Clause extended to protected animals that merely set a “foot upon federal lands” at any time and then wandered onto private lands,²⁰⁹ it did note that the Property Clause can “have some effect on private lands not otherwise under federal control,”²¹⁰ citing *Camfield v. United States*.²¹¹ In *Wyoming v. United States*, the Tenth Circuit found that in light of the “complete power” Congress has over public lands as “necessarily”—including “the power to regulate and protect the wildlife living there”—and concluded that the state did not have the right to manage wildlife where that management would contravene federal authority.²¹² In an earlier Tenth Circuit case, the court ordered the removal of an antelope-proof fence that interfered with the ability of antelope to migrate to winter feeding grounds, specifically finding that winter foraging by antelope is a lawful purpose of public lands.²¹³ These cases illustrate the federal government’s strong interest in the survival of its resident wildlife.

Perhaps then, given that strong federal interest in wildlife, it would not be an untoward extension of the federal government’s authority to protect wildlife that resides on its lands when it moves off those lands in search of new protected habitat.²¹⁴ However, this proposal would aggravate the tension between private ownership of wildlife habitat and public management of wildlife,²¹⁵ in part triggered by

209. The Court in *Kleppe*, however, held open the question of whether federal regulation of wild horses and burros on private lands would be constitutional under the Property Clause simply because “at any time . . . [they set] . . . foot upon federal land[.]” finding it inappropriate in a declaratory judgment proceeding “to determine the extent, if any, to which the Property Clause empowers Congress to protect animals on private lands . . .” *Kleppe*, 425 U.S. at 546.

210. *Id.*; see also *id.* at 538 (describing the “sole message” from *Camfield* as being that “the Property Clause is broad enough to reach beyond territorial limits”); see also Sax, *supra* note 97, at 239 (“The [United States v. Alford, 274 U.S. 264 (1927)] and *Camfield* cases establish unambiguously that the property clause permits federal regulation of private land,” noting that in 1976, the Court “expressly reaffirmed *Camfield*.”).

211. 167 U.S. 518 (1897).

212. *Wyoming vs. United States*, 279 F.3d 1214, 1227 (10th Cir. 2002) (quoting *Kleppe*, 426 U.S. 540–41) (“In our view, the ‘complete power’ that Congress has over public lands necessarily includes the power to regulate and protect the wildlife living there.”).

213. *U.S. ex rel. Bergen v. Lawrence*, 848 F.2d 1502 (10th Cir. 1988).

214. Sax suggests that federal land managers should be able to regulate activities beyond legislated boundaries based on nuisance theory as was affirmed in *Alford* and *Camfield*. See Sax, *supra* note 97, at 266.

215. Watson, *supra* note 195, at 292. Watson describes this as a kind of split estate with overlapping valuable resources, the rights to which are held by separate and distinct entities. *Id.* at 293. Predator species like wolves and grizzly bears as well as ungulates like bison and elk present their own conflicts with private landowners like ranchers because of predation and disease.

resistance to government access to private property.²¹⁶ The fact that federal agency employees might need to go on private property to determine how migrating wildlife are faring, the adequacy of the area for wildlife use, and whether wildlife are still using the property as habitat would feed into that tension.²¹⁷ Damage done to private property by wildlife, like broken fences, trampled or eaten crops, and killing of domestic animals, is another point of tension and could create opposition to making property more hospitable to climate migrants.²¹⁸ But while this opposition does not lessen the federal government's strong interest in protecting resident wildlife even when it moves off of public lands, it does counsel caution in how that interest might be given effect.

The Article so far has demonstrated the federal sovereign has a strong protective interest in wildlife that inhabits public lands, even when it leaves those lands, and that the public trust doctrine, which has some features that may be useful here, has evolved to protect non-traditional trust resources and non-traditional uses of those resources. All that remains is to show there is a federal public trust doctrine that, when coupled with the strong federal interest in wildlife, will protect wildlife as it moves over or onto private lands in search of more suitable habitat, whether water-based or not. It is to that task that the next Part of the Article turns.

V. THREE THEORIES SUPPORTING THE EXISTENCE OF A FEDERAL PUBLIC TRUST DOCTRINE AND WHY IT HAS NOT BEEN DISPLACED BY STATUTORY LAW

*Without a silver bullet, we must employ a shotgun approach.*²¹⁹

As noted previously, the public trust doctrine sidesteps the need to achieve political consensus among competing stakeholders as would

216. *Id.* at 296–97; *see also id.* (noting the existence of a question whether “the presence of a publicly owned resource on private land creates a public access right or easement over that private land”).

217. *Id.* at 297 (“No Western state has yet recognized a public access right across private land based solely on the presence of terrestrial wildlife, perhaps because the stream access disputes have been so contentious.”). Watson, however, is confident that with the “expanding conception of the public trust doctrine” and the parallels between stream access and wildlife—both are fugitive resources managed for the public benefit—there will soon be parallel litigation in which litigants seek “to apply the stream access rationale to terrestrial wildlife.” *Id.* at 297.

218. *Id.* at 293; *see also id.* at 298 (adding that landowners bear the costs of repairing countless miles of wildlife-damaged fences, usually without any compensation).

219. Fischman, *supra* note 56, at 286. Although referring to combatting global climate change, the quote appears equally apt to this Article's approach to finding a basis for a federal doctrine of public trust.

be required for any legislative or local collaborative effort to designate and protect a migration corridor, and avoids having to buy land, when funds may be unavailable and time of the essence.²²⁰ But why push for a federal version of the doctrine, the existence of which has been long debated by scholars,²²¹ when there has been a less contested state version for centuries? And why push for its expansion to non-water-based wildlife habitat? “Case law suggests that at best, the federal government is a co-trustee of wildlife and water resources,”²²² and even though states have extended public trust principles to cover wildlife,²²³ no federal court “has yet made the leap from water-based trust resources to strictly land based resources, at least in the absence of a statutory scheme incorporating trust principles.”²²⁴ The principal answer to these questions is pragmatic—only the federal version of the doctrine can be coterminous with the interstate migratory corridors that need protection and most of those corridors cross dry land.

A. Federal Doctrine of Public Trust

Electing not to parse or extend the work of other scholars who read into federal case law recognition of a federal public trust doctrine,²²⁵

220. See Cherney, *supra* note 62, at 616 (“The most technically elegant—and often inspiring—form of migratory conservation is to permanently protect corridors through comprehensive legislation. While this type of design is elegant, such efforts are unlikely to be both comprehensive and politically viable in complex political landscapes. Alternative approaches often suggest fully inclusive collaboration among diverse stakeholders to find mutually agreeable solutions. While equally noble in principle, finding consensus among divergent political perspectives is no easy task.”).

221. Shaffer, *supra* note 166, at 171; see also *id.* at 182–83 (“The question of whether causes of action based in public trust doctrine arise strictly as a matter of state law, or whether they can arise under both state and federal law remains an open one, despite the Supreme Court’s decision in *PPL Montana*.”); Robert L. Glicksman, *Sustainable Federal Land Management: Protecting Ecological Integrity and Preserving Environmental Principles*, 44 TULSA L. REV. 147, 183 (2008) (“As Professor Pearson has explained, the public trust doctrine ‘exists only nominally in federal law . . . [I]n federal law, the doctrine effectively is a non-player,’ so that the government can manage federal lands and resources ‘free and clear’ of any common law-derived public trust duties.”).

222. Lance Noel & Jeremy Firestone, *Public Trust Doctrine Implications of Electricity Production*, 5 MICH. J. ENVTL. & ADMIN. L. 169, 191 (2015). The authors go on to say that the United States “has an obligation to protect uniquely federal interests in these resources.” *Id.*

223. Coplan, *supra* note 5, at 318.

224. *Id.*

225. See, e.g., Schaffer, *supra* note 166, at 172 n.7 (saying “a long line of both federal and state cases—none of which were discussed or cited by either the district court or the D.C. Circuit—have explicitly recognized a federal-trust responsibility as the basis for the federal government’s authority to protect the public domain”); *id.* (quoting *Light v. United States*, 220 U.S. 523, 537 (1911) (“All the public lands of the nation are held in trust for the people of the whole country.”)); *id.* (paraphrasing *United States v. Trinidad Coal & Coking Co.*, 137 U.S. 160 (1890)); *United*

this Article finds support for a federalized version in the doctrine itself, in the close parallels between state and federal powers with respect to protecting and managing natural resources, and in the Ninth Amendment. These bases are discussed below as is an argument that the doctrine has risen to the level of a constitutional convention, to which courts might apply interpretative tropes like the hard look doctrine.

First, there is no basis in the doctrine itself that restricts its application to the states. From its origins, the public trust doctrine has been considered an attribute of sovereignty by necessity.²²⁶ “The idea that public trust limits and powers inhere in the very nature of sovereignty is one consistent thread in public trust cases.”²²⁷ The doctrine was originally applied against the King of England to protect the commoners’ rights of navigation and fishing.²²⁸ The language in Article

States v. Beebe, 127 U.S. 338, 342 (1888) (“The public domain is held by the Government as part of its trust. The Government is charged with the duty and clothed with the power to protect it from trespass and unlawful appropriation”); United States v. CB & I Constructors, Inc., 685 F.3d 827, 836 (9th Cir. 2012) (“In the public lands context, the federal government is more akin to a trustee that holds natural resources for the benefit of present and future generations.”); Germania Iron Co. v. United States, 58 F. 334, 336 (8th Cir. 1893) (“As has been frequently declared, in substance, the government is clothed with a trust in respect to the public domain.”), *aff’d*, 165 U.S. 379 (1897); Conner v. U.S. Dep’t of the Interior, 73 F. Supp. 2d 1215, 1219 (D. Nev. 1999) (“The United States holds public lands in trust and has the right and obligation to protect those lands from trespass.”); United States v. Burlington N. R.R., 710 F. Supp. 1286, 1287 (D. Neb. 1989) (“Although the public trust doctrine traditionally applied to tidal waters and the land submerged beneath them, the concept of the United States holding its land in trust for the general population has been extant for quite some time.”); *In re Steuart Transp. Co.*, 495 F. Supp. 38, 40 (E.D. Va. 1980) (“Under the public trust doctrine, the State of Virginia and the United States have the right and the duty to protect and preserve the public’s interest in natural wildlife resources.”); Mendiola v. Graham, 10 P.2d 911, 914 (Or. 1932); Sw. Wash. Prod. Credit Ass’n v. Fender, 150 P.2d 983, 986 (Wash. 1944).

226. Arnold v. Mundy, 6 N.J.L. 1, 49 (1821) (“But inasmuch as the things which constitute this *common property* are things in which a sort of transient usufructuary possession, only, can be had; and inasmuch as the title to them and to the soil by which they are supported, and to which they are appurtenant, cannot well, according to the common law notion of title, be vested in all the people; therefore, the wisdom of that law has placed it in the hands of the sovereign power, to be held, protected, and regulated for the common use and benefit.”).

227. Coplan, *supra* note 5, at 311; *see also id.* at 312 (“Since public trust doctrine is a pre-existing limit on the scope of state sovereignty, *Thornton* suggests that the pre-existing rights of the people in trust assets—at a minimum, rights to navigation and fishing—are reserved by the Tenth Amendment.”); *id.* (citing U.S. Term Limits, Inc. v. Thornton, 514 U.S. 779 (1995)) (holding that the Tenth Amendment only reserves to states those sovereign powers in existence at the time of founding of the United States and reserves to the people those aspects of sovereignty not residing in the States).

228. See Robin Kundis Craig, *Mobil Oil Exploration, Environmental Protection, and Contract Repudiation: It’s Time to Recognize the Public Trust in the Outer Conti-*

III of the 1783 Treaty of Paris giving Americans the right to continue “to enjoy unmolested the right to take fish,” at any place in what had been part of the British Empire²²⁹ implies that the manner of enjoyment would be similar to what British subjects enjoyed—in other words, that the duty to protect the public trust rights of citizens would continue to reside in the supreme sovereign, the federal government.

When first applied in the United States, it was mere happenstance that the doctrine arose in a New Jersey state court in a case involving public access to oyster beds in Raritan Bay²³⁰; it could have as easily arisen in a federal court as demonstrated by two later Supreme Court decisions entertaining the doctrine, one of which was only a little over a decade later than the New Jersey court decision.²³¹ Until recent statements in *Montana Public Power & Light v. Montana*,²³² and *Alec L. v. Jackson*,²³³ saying, in dicta, the public trust doctrine was a matter of state, not federal, law courts have not opined on the doctrine’s possible federal existence. The one exception is a case involving the crash of an Eastern Airlines jet in the Potomac River, where the court declined to rule on the existence of a federal version of the doctrine because it had not been raised below, even though the court found the concept interesting.²³⁴

mental Shelf, 30 ENVTL. L. REP. 11104, 11116 (2000) (“[I]n America, the public trust doctrine applies primarily to states, not the federal government,” although nothing prevents it from applying to the federal government “because the doctrine derives from the English monarch’s national sovereignty.”).

229. Treaty of Paris, *supra* note 177.

230. *Arnold*, 6 N.J.L. 1 (1821) (affirming state holds submerged lands in trust for the people).

231. See *Martin v. Waddell’s Lessee*, 41 U.S. (16 Pet.) 367, 413–14 (1842) (“[F]rom 1702 . . . until a very recent date, the people of New Jersey have exercised and enjoyed the rights of fishery for shellfish and floating fish, as a common and undoubted right.”); see also *Shively v. Bowlby*, 1 U.S. 152 (1894) (holding public trust principles applied to curtail riparian property rights under congressional land grant). Wilkinson says of *Shively* that it is “the clearest exposition that the United States was limited by the classic public trust doctrine in dealing with navigable watercourses before statehood.” Wilkinson, *supra* note 1, at 301; Coplan, *supra* note 5, at 307 (contending that this case was “apparently” decided as a matter of federal common law because of its application of *Arnold*).

232. 132 S. Ct. 1215 (2012).

233. 863 F. Supp. 2d 11 (D.D.C. 2012), *aff’d*, *Alec L. ex rel. Looz v. McCarthy*, 561 F. App’x 7 (D.C. Cir. 2014).

234. The D.C. Circuit explained why it declined to reach the questions involved in declaring the existence of a federal public trust doctrine. See *District of Columbia v. Air Fla., Inc.*, 750 F.2d 1077, 1078–79 (D.C. Cir. 1984) (“Our decision not to consider the District’s public trust claim is reinforced by our belief that the argument that public trust duties pertain to federal navigable waters, such as the section of the Potomac River at issue here, raises a number of very difficult issues concerning the rights and obligations of the United States (which is not a party here), the creation of federal common law, and the delegation of trust duties to the District.”).

A second argument builds on the constitutive similarities between federal and state governmental authority. Since federal and state governments each exists for the benefit of the public each serves, and each government holds title to land and natural resources as a representative of that public, there are no discontinuities between them in this regard. Further, the constitutional authority under which the federal government manages and protects its land (the Property Clause) “is essentially indistinguishable from the constitutional authority under which states operate (the police power).”²³⁵ The Property Clause and state police power are “exceedingly broad authorities authorizing a wide range of actions for a wide variety of reasons.”²³⁶ According to Coplan, “if the public trust is essential to the nature of sovereignty and encompasses rights reserved to the people generally, then the doctrine applies equally to the sovereign federal government as it does to the sovereign state governments.”²³⁷ Wilkinson suggests that there should actually be fifty one public trust doctrines—one in every state and a federal version.²³⁸ Then why should not the public trust doctrine, which is designed to serve the public interest, “take on parallel contours at both the state and federal levels?”²³⁹

Indeed, if there is no “limiting doctrine pertaining to a specific type of trust resource,” like submerged lands or lands covered by the equal footing doctrine, “there is no reason why public trust obligations do not extend to the federal government.”²⁴⁰ According to Wilkinson, “the trust concept has been properly invoked as the best available formulation of the central doctrinal forces in public land law—that increasingly tough strictures are required, and have been imposed, on land management officials; that land management is not a private business; that ultimate accountability is to the public; and that over time the public and Congress have come to place ever greater importance on the nation’s public natural resources.”²⁴¹

Any argument that lands under the control of the federal government should not be covered by the public trust doctrine cannot be based on the “non-plenary nature of the federal government because, as to resources it controls, the duty has always been plenary even if the character of the government has both limited and plenary con-

235. See *Camfield v. United States*, 167 U.S. 518, 525 (“The general government doubtless has a power over its own property analogous to the police power of the several states, and the extent to which it may go in the exercise of such power is measured by the exigencies of the particular case.”).

236. Eric Pearson, *The Public Trust Doctrine in Federal Law*, 24 J. LAND RESOURCES & ENVTL. L. 173, 177 (2004).

237. Coplan, *supra* note 5, at 313.

238. *Id.*

239. Pearson, *supra* note 236, at 177.

240. Torres & Bellinger, *supra* note 159, at 295.

241. Wilkinson, *supra* note 1, at 304.

tent.”²⁴² Further, the national importance of wildlife, as argued earlier in this Article, and in many cases its interstate even international character, implicates federal trust obligations.²⁴³

The third argument posits that the rights the public possess under the public trust doctrine are unenumerated rights under the Ninth Amendment,²⁴⁴ or alternatively rise to the level of a constitutional interpretative convention, Sax’s hard look.²⁴⁵ The right of access to public trust resources, the guarantee that those resources will not be converted from a public to a private use, the right to enjoy trust resources, and the obligation imposed by the doctrine on the sovereign to protect those rights are not elsewhere enumerated in the Constitu-

242. Torres & Bellinger, *supra* note 159, at 296.

243. *Id.* at 296 (“For certain resources that bear a national character, the Supreme Court has found that the public trust doctrine applies to them. These national resources often have interstate significance implicating federal trust obligations.”); *see also id.* at 296 n.59 (citing *Light v. United States*, 220 U.S. 523, 537 (1911) (“All the public lands of the nation are held in trust for the people of the whole country.”)).

244. U.S. CONST. amend. IX (“[E]numeration in the Constitution of certain rights, shall not be construed to deny or disparage others retained by the people.”). An argument might also be made that the Preamble of the Constitution vests an implied power in the government of the United States to promote the general welfare and the public trust doctrine is essential to the general welfare. For a thorough discussion of implied powers as applied to the “necessary and proper clause,” and specifically listing promotion of the general welfare as a governmental purpose, see John Mikhail, *The Constitution and the Philosophy of Language: Entailment, Implicature, and Implied Powers*, 101 U. VA. L. REV. 1063, 1098 (2015); *see also Coplan*, *supra* note 5, at 310 (noting that “Richard Epstein has argued that public trust limits on state action inhere in Equal Protection principles, as well as in the converse of the Takings Clause: grants of unequal rights to public resources deprive other persons equal protection of the law, and the same principle that requires compensation for the taking of private property precludes inadequately compensated grants of public assets. Other commentators have placed the source of public trust limits in the Commerce Clause of the Constitution as an aspect of the implied guarantee of free navigation underlying Dormant Commerce Clause analysis. Others define the public trust doctrine as a vestige of federal common law.”); Torres & Bellinger, *supra* note 159, at 290–94 (listing in addition to the Preamble, the Reserved Powers Doctrine, the Equal Protection Clause, the Due Process Clause as possible homes for the public trust doctrine); Wilkinson, *supra* note 1, at 308–09 (“It is entirely possible that courts today would find that the Property Clause includes some general trust notions and that Congress is a constitutional trustee.”).

245. Coplan, *supra* note 5, at 316 (proposing that public trust principles might function like a rule of construction, or as a repository of moral and ethical values in matters involving environmental or cultural resources). Professor Joseph Sax also viewed the public trust doctrine as a rule of construction, embodying interpretative rules like the hard look doctrine. Sax, *supra* note 4, at 509 (“Public trust law is not so much a substantive set of standards for dealing with the public domain as it is a technique by which courts may mend perceived imperfections in the legislative and administrative process.”).

tion.²⁴⁶ Yet, this Article has shown that they are fundamental rights that Americans have enjoyed for centuries and, therefore, would be ones that had been “retained by the people at the enactment of the Constitution,” as demonstrated by Article III of the Treaty of Paris.²⁴⁷

The language and history of the Ninth Amendment reveal that the Framers of the Constitution believed that there are additional fundamental rights, protected from governmental infringement, which exist alongside those fundamental rights specifically mentioned in the first eight constitutional amendments The Amendment . . . was introduced in Congress . . . and passed the House and Senate with little or no debate and virtually no change in language. It was proffered to quiet expressed fears that a bill of specifically enumerated rights could not be sufficiently broad to cover all essential rights and that the specific mention of certain rights would be interpreted as a denial that others were protected.²⁴⁸

Whether or not rights addressed in the Ninth Amendment are viewed as “residual or negative rights” the chief purpose of which are to limit the power of the federal government or as “a source of affirmative or positive rights,” the conception of rights in the Ninth Amendment “is inclusive enough to extend to a broad range of privileges and prerogatives that modern thinkers would not typically identify as moral or legal rights . . . [including] those individual rights that we

246. See Christopher J. Schmidt, *Revitalizing the Quiet Ninth Amendment: Determining Unenumerated Rights and Eliminating Substantive Due Process*, 32 U. BALT. L. REV. 169, 215 (2003) (saying if the alleged right is governed by any other constitutional provision, then that provision governs and “there is no Ninth Amendment issue”).

247. *Id.* at 215; see also *Griswold v. Connecticut*, 381, 479, 493 (1965) (Goldberg, J., concurring) (establishing as a test for determining which rights should be protected by the Ninth Amendment whether the unenumerated rights were sufficiently engrained in the traditions and collective conscience of the people so as to be fundamental); Adam Lamparello, *Fundamental Unenumerated Rights under the Ninth Amendment and the Privileges and Immunities Clause*, 49 AKRON L. REV. 179, 184–85 (2016) (quoting *McDonald v. City of Chicago*, 561 U.S. 742, 760 (2010) as saying “immutable principles of justice which inhere in the very idea of free government which no member of the Union may disregard”); *id.* (“In *Palko v. Connecticut*, the Court held that the Due Process Clause protects rights that are ‘the very essence of a scheme of ordered liberty’ and essential to ‘a fair and enlightened system of justice.’ This includes rights that are ‘so rooted in the traditions and conscience of our people as to be ranked as fundamental.’ In *Duncan v. Louisiana*, the Court framed the fundamental rights inquiry as whether ‘a civilized system could be imagined that would not accord the particular protection.’”). Douglas in his dissent in *Palmer v. Thompson*, 430 U.S. 217, 233–34 (1971), advocated that the penumbra of rights protected by the Ninth Amendment should include clean air and water as well as aquatic recreation. For a discussion of cases post-*Griswold*, see Joseph F. Kadlec, 48 B.C. L. REV. 387, 406–08 (2007).

248. Lamparello, *supra* note 247, at 199 (quoting Justice Goldberg in *Griswold v. Connecticut*, 381 U.S. 479, 488–89 (1965)); see also *id.* at 200 (“Simply put, the Framers did not intend ‘that the first eight amendments be construed to exhaust the basic and fundamental rights which the Constitution guaranteed to the people.’”).

might call ‘fundamental’ and which the framers might have called ‘natural.’”²⁴⁹ For the limited purposes proposed in this Article, there is no need to determine the exact meaning of the Ninth Amendment either by parsing its text or its origins, or whether the Amendment’s purpose is as an aid to federalism or the protection of individual rights, let alone what interpretative rules should be applied to understand its meaning.²⁵⁰ Rather, the Article’s quite limited assertion is that the Ninth Amendment is capacious enough to provide support for certain fundamental rights beyond those set out in the Constitution, side stepping these and other controversial issues, including whether unenumerated rights are enforceable.²⁵¹

Nothing in the express semantic meaning of the Amendment either requires courts to treat unenumerated “retained” rights as if they were constitutional rights or precludes them from according enumerated constitutional rights more favorable treatment than is accorded unenumerated rights. At the same time, however, the Amendment’s express command is equally clear that the mere fact that a particular right has been enumerated in the Constitution cannot be used as an argument for according some other “retained” right a narrower scope or lesser protection than it would have received if the enumerated right in question had not been included in the Constitution.²⁵²

Importantly, this Article has shown that the rights embodied in the public trust doctrine are “fundamental to our scheme of ordered liberty” and are “deeply rooted in this nation’s history and tradition,”²⁵³ and thus might qualify for constitutional recognition.

To not allow constitutions to breathe as it were, is to freeze constitutional meaning across time, can create “a democratic deficit” for successor generations.²⁵⁴ Recognizing public trust rights as unenumerated rights under the Ninth Amendment does not create “a

249. *Id.* at 201 (quoting Thomas B. McAfee, *The Original Meaning of the Ninth Amendment*, 90 COLUM. L. REV. 1215, 1221 (1990)).

250. For a thorough examination of these topics and more, see Ryan C. Williams, *The Ninth Amendment as a Rule of Construction*, 111 COLUM. L. REV. 498 (2011).

251. If, however, one wanted to create a judicially enforceable constitutional public trust right, then one might see if it is located elsewhere in the Constitution, for example in the Due Process Clause, in which case the Ninth Amendment might supplement that right. *See id.* at 573 (“[T]he Ninth Amendment might play a supporting role in the protection of such rights, both by precluding arguments seeking to ‘deny or disparage’ such rights on the basis of their unenumerated status and by showing the types of unenumerated rights members of the founding generation may have viewed as important.”).

252. *Id.* at 531–32; *see also id.* at 572 (“All that the express language of the Ninth Amendment commands is that the fact that certain rights have been enumerated in the Constitution not be used as a basis for either denying the existence of other ‘retained’ rights or according such rights a lower level of protection or respect than they would have received if the Constitution lacked an enumeration of rights.”).

253. Torres & Bellinger, *supra* note 159, at 294 (citing *MacDonald v. Chicago*, 130 S. Ct. 3020, 3036 (2010) (citation omitted)).

254. Richard Albert, *How Unwritten Constitutional Norms Change Written Constitutions*, 38 DUBLIN U. L.J. 387, 406 (2015).

dissonance between what the text says how political actors conduct themselves . . . or in how the readers themselves perceive their rights and duties.”²⁵⁵ Reading the text of the Ninth Amendment to encompass public trust rights does no violation to the text nor to expected “outcomes” that are generated by such an interpretation.²⁵⁶ If this third argument is successful, then the Ninth Amendment gains for the doctrine a federal constitutional purchase.²⁵⁷

An alternative argument to that proffered above with respect to the Ninth Amendment, but one that still places a gloss of federal constitutionality on the doctrine, is that the rights protected by the public trust doctrine rise to the level of a constitutional convention—“a rule that creates an obligation, confers rights or powers, or otherwise governs the conduct of political actors.”²⁵⁸ To become a constitutional convention, the practice must be “rooted in normativity” and also “be ‘desirable in the circumstances of the Constitution.’”²⁵⁹ Constitutional conventions are identifiable by the fact that people know about them and conform their conduct to them.²⁶⁰ Over two hundred years of judicial conformity to the dictates of the public trust doctrine, indicates the existence of an unwritten rule that reflects what people actually do or are expected to do, a rule that “compels political actors to act in a way that is not mandated by the constitutional text.”²⁶¹

Federal courts might then rely on the existence of this convention to apply a rule of construction, like the hard look doctrine, that would place a higher burden of justification on any private or public entity that seeks to diminish the public’s rights in a trust resource.²⁶² This

255. *Id.* at 406–07.

256. *Id.* at 407 (“The payoff is the core promise of the rule of law: fair notice to those governed by the text such that there exists symmetry between the expectations the text creates and the outcomes it generates.”).

257. *But see* Wilkinson, *supra* note 1, at 307 (“Rather than finding a constitutional footing for the trust, the Supreme Court might be more likely to tie the trust to a comprehensive statutory scheme.”). As this Article is only looking for support for the concept of a federal public trust doctrine, the author is not intending to create a constitutionally enforceable right. If it were, then one might need to contend with those who opine that although there are retained unenumerated rights, judges may not enforce them. *See, e.g., Troxel v. Granville*, 530 U.S. 57, 91–92 (2000) (Scalia, J., dissenting).

258. Albert, *supra* note 254, at 390.

259. *Id.* (quoting IVOR JENNINGS, *THE LAW AND THE CONSTITUTION* 136 (University of London Press, 5th ed. 1967)).

260. *Id.*

261. *Id.* (saying, additionally, constitutional conventions “are knowable by the conduct of others insofar as they ‘ultimately reflect what people do’”); *see also* Wilkinson, *supra* note 1, at 304 (“The trust notion, as a generic concept, is an appropriate description of the federal role in public land law. It is a common-sense description that has evolved in regard to the inland public lands.”).

262. Coplan, *supra* note 5, at 334 (discussing the utility of public trust principles as presenting “an interpretive principle that will limit the scope of the rights that private parties holding emissions rights may assert”); *see also* Wilkinson, *supra*

is in accord with Wilkinson's suggestion that the doctrine might function as a canon of construction when public lands and the trust responsibility of a federal land agency toward those lands are at issue.²⁶³

B. Objections to a Federal Public Trust Doctrine

Using the public trust doctrine in the way this article proposes is sure to court "powerful enemies."²⁶⁴ The fact that the doctrine "is both a recognition of a sort of latent public property interest in natural resources and a form of constitutional limitation on state authority, in its more affirmative formulations it has been aggressively opposed both by proponents of strong private property rights and by proponents of broad state agency discretion."²⁶⁵ Two frequently heard general objections to the public trust doctrine is that it interferes with otherwise applicable federal regulatory schemes and that it embroils courts in matters best left to the policy branches of government. The first objection implicates the preemption doctrine; the second the political question doctrine. As shown below, neither constitutional objection has any relevance to the use of a federal common law doctrine to protect migrating wildlife.

1. *Statutory Law Displaces Common Law Doctrines like the Public Trust Doctrine*

There is little question that existing federal laws displace or preempt common law.²⁶⁶ This prudential rule recognizes "that the legislature, through statutory law, has supplanted common law by 'filling

note 1, at 310–11 (suggesting that the public trust doctrine might "operate as a limitation on the discretion of administrative agencies" or "as a basis for the ultimate hard look doctrine for reviewing agency action," and also applying as a rule of "construction of statutes against the background of a duty to the public," which could affect the interpretation of a many public lands statutes); *id.* at 313–15 (referring to "an action-forcing mechanism" requiring agencies to take affirmative action to protect public "resources that many different segments of the public").

263. Wilkinson, *supra* note 1, at 315 n.317; *see also id.* at 316 ("The trust concept can be useful as a backdrop for judicial decisionmaking, as an aid in determining legislative intent and as a yardstick in assessing administrative action or inaction.").

264. Redmond, *supra* note 157, at 305.

265. *Id.*

266. *See* Shaffer, *supra* note 166, at 175 n.15 ("Displacement analysis generally involves a judicial recognition that the legislature, through statutory law, has supplanted common law by 'filling the field' formerly occupied by that common law."). *But see generally id.* at 190–95 (arguing that the District court opinion in *Alec L.*, which found that even if a federal public trust doctrine existed, existing federal regulations displaced the doctrine, was inconsistent with the origins and purposes of the public trust doctrine).

the field' formerly occupied by that common law."²⁶⁷ But here there is no federal law that comprehensively applies to migrating wildlife, no available federal remedy that the public might seek, nor the promise that there will be one anytime soon given general congressional antipathy to climate change and overall dysfunction. Applying the public trust doctrine, in fact, would temporarily fill a federal regulatory gap until Congress acts, if it elects to act. The continuing failure of the political branches of government to address the problem of migrating climate-stressed wildlife leaves room for the judiciary to act.²⁶⁸ Application of a federalized public trust doctrine in this situation renders no law or regulatory scheme "meaningless,"²⁶⁹ and thus is different from that confronting the plaintiffs in *Alec L.*, who unsuccessfully sought the application of the federal public trust doctrine, where "[t]he existence of a legislative scheme addressing greenhouse-gas emissions required the plaintiffs to bring claims under those statutes."²⁷⁰

Federal agencies are not yet seriously thinking about, let alone planning for, climate-driven wildlife migrants.²⁷¹ According to Camacho and Glicksman, "the statutory regimes that govern management of official wilderness and the national parks are rooted in historical and wilderness preservation goals that impair agencies' ability to meet climate-related threats."²⁷² While the emphasis on protection of ecological functions reflected in the organic statute governing the activi-

267. *Id.* (citing *Am. Elec. Power Co. v. Connecticut (AEP)*, 131 S. Ct. 2527, 2537 (2011); *Native Village of Kivalina v. ExxonMobil Corp.*, 696 F.3d 849, 856 (9th Cir. 2012), *cert. denied*, 133 S. Ct. 2390 (2013); *Michigan v. U.S. Army Corps of Eng'rs*, 667 F.3d 765, 800 (7th Cir. 2011)).

268. Torres & Bellinger, *supra* note 159, at 313–14.

269. *Id.* at 305 (applying this analysis to the Clean Air Act). However, unlike the Clean Air Act (CAA), some federal laws that apply to natural resources hint at a federal trust responsibility. So while the public trust doctrine might duplicate those responsibilities, it would not conflict with them, and in all likelihood enhance them. *See id.* at 309 (supplementing the statutory and regulatory scheme of the CAA with the public trust doctrine would not render those schemes "meaningless").

270. Shaffer, *supra* note 166, at 181 (stating "*Alec L. v. Jackson* represents the first clear assertion by the federal courts that statutory displacement applies in the public trust context").

271. Camacho & Glicksman, *supra* note 100, at 816 ("Climate change adaptation has been almost entirely absent from wilderness management."); *see id.* ("[T]he NPS has not moved much beyond information-gathering and establishment of planning frameworks, and the FWS has gone somewhat (but not considerably) further than the NPS." BLM's climate-related posture is "neither notably beyond nor behind what its past management priorities might have predicted."); *id.* at 814 ("[E]ven if some BLM lands may be less ecologically rich than other federal lands, this may change (or need to change) as the climate does. The nearly 248 million acres of BLM lands—the largest of the federal land agencies—may be essential components of a resilient approach to resource management as climate conditions shift and biota need to migrate to more compatible locations.").

272. *Id.* at 816.

ties of the Fish and Wildlife Service would seem to make it more responsive to climate change, the agency “has to a certain degree tied its own hands by interpreting its mandate as oriented toward historical preservation.”²⁷³ Even the National Forest Service, which may be the most advanced of the land management agencies in its commitment to climate change adaptation,²⁷⁴ is included in Camacho and Glicksman’s recommendation that all the federal land management agencies pursue a much more aggressive hands-on management posture in their management approaches to make them more responsive to climate change.²⁷⁵

In short, no federal land management law directly addresses climate change nor are the agencies charged with implementing those laws planning in any way to respond to climate change, let alone the specific issues facing climate-driven wildlife migrants. This leaves a substantial gap that judicious use of a federalized public trust doctrine by courts could temporarily fill until displaced by new federal laws or regulations.

2. *The Public Trust Doctrine Invites Courts to Intrude in Policy Making by the Political Branches*

In *Alec L.* the court balked at what it viewed as a request to craft policy, thereby invading the role of the legislature in violation of the separation of powers doctrine.²⁷⁶ But judicial enforcement of fiduciary obligations like those embodied in the public trust doctrine should not raise political question concerns because courts are merely protecting the public against executive or legislative abuses of power, which is a traditional function of courts.²⁷⁷

Moreover, use of the federal public trust doctrine in this situation does not restrict legislative and executive actions from harming trust resources, like the state doctrine usually does; it encourages agencies to act to protect those resources. The doctrine temporarily fills a gap where there is no regulatory presence and might be used to supple-

273. *Id.* at 816–17.

274. *Id.* at 816. The authors note how surprising this is given the Forest Service’s history of being considered “a captured agency concerned more with maximizing timber cuts than protecting ecological forest health.” *Id.*

275. *Id.* at 818.

276. Shaffer, *supra* note 166, at 181 (referring to *Svitak ex rel. Svitak v. Washington*, No. 69710-2-1, 2013 WL 6632124 (Wash. Ct. App. Dec. 16, 2013)).

277. *Id.* at 196; see Sax, *supra* note 4, at 559–61 (explaining the interplay between the courts and legislatures in cases involving the public trust doctrine, agreeing that legislatures are the preferred guardian of the public weal, but that the public trust doctrine has a role to play in democratizing the agency decision making process); see also Torres & Bellinger, *supra* note 159, at 298 (“Importantly, judicial inaction effectively forecloses the political question for future legislatures by reducing the available policy options.”).

ment and support whatever legislative and executive action happens.²⁷⁸

The legal dichotomy [between the state and federal doctrine] is thus in high relief: as the highest court in the land views it, the public trust doctrine in state law empowers the judicial branch to overturn substantive choices made by political branches of government. The public trust doctrine in federal law works to the opposite end. In federal law, the doctrine empowers the political branches of government to implement substantive choices despite objections in the judicial branch.²⁷⁹

This Article has argued that the public trust doctrine imposes a fiduciary duty on the federal government to protect wildlife, a natural resource of national significance, which can neither be displaced nor violates the separation of powers canon. The Article has also suggested that “[t]he modern public trust doctrine is firmly supported by the principles of constitutional law and is an essential attribute of sovereignty.”²⁸⁰ The Article suggests, alternatively, that the doctrine is a constitutional convention, which invites federal courts to use it as an interpretive rule when faced with a question involving a barrier to wildlife migration.

The final Part of the Article proposes some changes to the federal public trust doctrine that might make its application to migratory wildlife as they move across private lands more politically salient and effective.

VI. PROPOSAL

*Each legal field has its own distinctive perspectives, institutions, and policy instruments, as well as recurring controversies. Broadening our thinking about environmental policy tools to include more non-environmental laws diversifies the options available to policymakers and ultimately can make environmental policy more nimble, adaptive, and resilient to the vexing challenges it faces.*²⁸¹

The Article proposes that a federal version of the public trust doctrine be available as a tool to encourage the removal of obstacles that wildlife encounter when they migrate across private property in

278. Pearson, *supra* note 236, at 175–76.

279. *Id.* at 176–77.

280. Torres & Bellinger, *supra* note 159, at 316 (“The public trust doctrine offers a legal framework that citizens can use to compel government to fulfill its fiduciary duties to protect natural resources. The modern public trust doctrine is firmly supported by the principles of constitutional law and is an essential attribute of sovereignty.”).

281. Aagaard, *supra* note 114, at 62.

search of more suitable areas in which to live.²⁸² To say that this proposal is controversial is an understatement.²⁸³

To lessen the controversy associated with the core proposal—the use of a federal public trust doctrine on private lands—and make it more politically salient, the Article proposes three modifications in how the doctrine might be used. First, a federal public trust doctrine should only be used to protect wildlife that has some type of connection to public lands before it moves onto and/or across private land in search of more suitable habitat. In this way, public lands serve as an anchor for the doctrine. Second, the Article proposes a rolling public trust doctrine that follows wildlife as it moves, allowing land that is no longer useful for wildlife to be removed from the strictures of the doctrine as it rolls forward to cover new lands. Third, individual property owners can contract to avoid application of the doctrine, if they agree to make their lands suitable for migrating wildlife in advance of the doctrine's application. This aspect of the proposal allows wildlife sensitive development to occur and includes the possibility that the doctrine might only be applied seasonally.

Restricting application of the doctrine to migrating wildlife that at some point has been geographically connected to public lands limits the doctrine's application. This modification reflects both the sovereign's strong interest in resident wildlife,²⁸⁴ even when it leaves public lands, and its trust responsibilities over public lands.²⁸⁵ These

282. An examples of other tools that might be used to increase protected wildlife habitat in addition to those discussed in this article, Fischman describes a web of federal, state, and local conservation programs like state wildlife action plans, which contain incentives to protect wildlife habitat, and farm bill programs which fund private conservation efforts on agricultural lands, and the importance of integrating those initiatives into federal land management plans. Fischman, *supra* note 84, at 51–52.

283. Forty years ago Joseph Sax commented that construing the Property Clause broadly to protect lands adjacent to national parks “presents a problem—widespread displacement of traditional state land regulation,” noting in addition that “[e]very expansion of the property clause increases the power of the federal government at the expense of the states’ authority, and by the traditional jurisprudence of federalism that is cause for unease.” Sax, *supra* note 97, at 254. The same could be said about the application of a federal public trust doctrine.

284. *See generally* Blumm & Paulsen, *supra* note 176 (discussing the strong federal interest in wildlife).

285. *See* Glicksman, *supra* note 221, at 183–90 (discussing various federal laws, such as the National Park Service Organic Act, the Comprehensive Environmental Response, Compensation, and Liability Act, and the National Environmental Policy Act as imposing trust responsibilities on the federal government). *But see* Wilkinson, *supra* note 1, at 273 (“The federal public lands are at the outer reaches of the public trust doctrine.”) (citing dictum in *Illinois Central R.R. v. Illinois* saying “that title to land under navigable waterways is ‘different from the title the United States holds in the public lands which are open to pre-emption and sale.’ That language amounts to a clear finding that the classic public trust doctrine does not operate on the inland public lands.”); *id.* at 275 (“Thus the common law

responsibilities are similar to those the sovereign has under the public trust doctrine.²⁸⁶ According to Wilkinson, “[t]he whole of these laws is greater than the sum of its parts. The modern statutes set a tone, a context, a milieu. When read together they require a trustee’s care. Thus we can expect courts today, like courts in earlier eras, to characterize Congress’s modern legislative scheme as imposing a public trust on the public resources.”²⁸⁷

Second, the Article proposes a moving federal public trust doctrine that rolls forward to keep pace with the migrating wildlife, if no other legal regime is available to protect them. This is, in part, a reaction to the reality of climate change and the uncertainty of when, how, and where wildlife will respond to it. As the trust rolls forward following migrating wildlife, lands that are no longer useful for wildlife could be released from the doctrine’s application.²⁸⁸ This proposal is not that novel as courts routinely allow lands protected by the public trust doctrine to be released for purposes not inconsistent with the trust or be-

trust is not direct authority for the existence of the public trust on the inland public lands.”). Wilkinson goes to great length to explain why the doctrine in its “classic form” does not apply to public lands, including the history of land disposition, the comprehensive “legislative matrix” of public lands laws occupying the field, diversity of the land base and managing agencies making it difficult to apply a single, unitary to all of the public lands, and the lack of wildlife or scenic value of these lands raising a question of their suitability for a trust. *Id.* at 276–77. Nonetheless, Wilkinson comments on the imposing and growing body of case law suggesting that the public trust doctrine applies to the public lands,” and that “the teaching of existing law seems to be that public land law has borrowed important components from the public trust doctrine.” *Id.* at 277.

286. Wilkinson lists eighteen opinions, many of them by the Supreme Court from about 1888 through 1970, that use trust language to describe the role of the United States, including *Light v. United States*, 220 U.S. 523 (1911), which Wilkinson described as a “cornerstone of broad federal management authority over public lands.” Wilkinson, *supra* note 1, at 281–82; *see also* *Knight v. United States Land Ass’n*, 142 U.S. 161, 181 (1891) (directing the federal government to be the “guardian of the people of the United States over public lands”); *United States v. 1.58 Acres of Land*, 523 F. Supp. 120 (D. Mass. 1981) (trust duties federal government has over federal lands prevent alienation of federal trust lands in favor of private interests); *United States v. Beebe*, 127 U.S. 338, 342 (1888) (the Court over uses “specific trust language in describing the public domain as held by the Government as part of its trust.”).

287. Wilkinson, *supra* note 1, at 299.

288. This concept is similar to so-called “ark easements,” which are “conservation easement that can be easily terminated if its purpose fails because of changing environmental conditions.” Kimbrell, *supra* note 6, at 146–47. *See also* Olmsted, *supra* note 8, at 70 (“Ark easements would represent strategically placed reserves that could be used as stepping stones for migrating species. Once it was determined that any such ark easement was no longer serving its ark purpose, it would be extinguished and the proceeds would be re-deployed to serve similar conservation purposes on new lands.”).

cause the trust should no longer be applicable.²⁸⁹ Once land is released from the doctrine's application, what had been a seemingly permanent cloud on the title of those lands lifts, allowing them to re-enter the marketplace and local tax rolls unencumbered. This modification could potentially achieve a rough regional balance along various migratory routes because as new lands within the corridor come within the doctrine's reach, other lands would be released from its application.

Third, the Article proposes that the federal public trust doctrine only be used to prevent the complete conversion of private lands to a use that is hostile to the presence of climate migrants or to encourage removal of barriers to wildlife migration. Non-interfering uses of trust protected lands would be allowed. Thus, an owner of land in a migratory corridor whose lands might otherwise be subject to the doctrine might avoid its full application by entering into a restricted covenant that requires the permanent removal of migration barriers or other hazards to migrating wildlife, leaving the rest of the land unrestricted. Those covenants would attach to the property's title, be duly recorded, and be enforceable by federal or state governments or the public. Since it is highly unlikely that protection of habitat in wildlife migration corridors will necessitate the acquisition of full fee simple absolute title, conservation easements might be used to place seasonal limitations on certain uses of this land.²⁹⁰ This flexibility in the doctrine's application would allow wildlife sensitive development of lands in a migratory corridor.

But these are major changes in how the generic public trust doctrine is used today. They are certain to generate controversy among supporters of the doctrine's use perhaps equal to the hostility of those who oppose the doctrine's existence.

The public trust doctrine "is an affirmation of the duty of the state to protect the people's common heritage of streams, lakes, marshland and tidelands, surrendering that right of protection only in rare cases

289. *See Appleby v. City of New York*, 271 U.S. 364, 401–03 (1926) (finding consistent with the public trust doctrine legislative grants of submerged and the deposition of fill in those waters for purpose of future development so long as these rights do not substantially interfere with public trust values); *see also* Coplan, *supra* note 5, at 329 (discussing the California Supreme Court's decision in *Mono Lake* and saying as the "California Supreme Court put it, '[t]he state must have the power to grant non-vested usufructuary rights' The key to consistency of such a grant with the public trust is its sustainability—does the grant allocate such a large portion of the public trust resource to current interests that it deprives future generations of the equivalent environmental benefits enjoyed by the current generation?").

290. Fischman & Hyman, *supra* note 79, at 213 ("Acquisition of habitat in corridors will rarely require purchase of a full fee simple absolute. Instead, seasonal habitat provision or limitations on just some potential activities on the site may be obtained through conservation easements.").

where abandonment of that right is consistent with the purposes of the trust.”²⁹¹ This Article proposes using a federal version of the public trust doctrine to enable unimpeded migration of wildlife across private lands fleeing the adverse effects of climate change. “An owner of land has no absolute and unlimited right to change the essential natural character of his land so as to use it for a purpose for which it was unsuited in its natural state and which injures the rights of others.”²⁹² Fences, roads, harvesting trees, filling wetlands, mining and many other activities change the “essential natural character” of the land and injure others by making unavailable essential habitat for wildlife, on which humans depend for their survival. To the extent those changes “eat up the usufruct of the lands for several generations to come,” then, as Thomas Jefferson wrote to James Madison, “the lands would belong to the dead, and not to the living.”²⁹³

VII. CONCLUSION

*Some day—hopefully—Congress will return to constructive engagement with environmental issues. In the indefinite meantime, however, the legislative impasse presents a significant obstacle to progress against environmental problems. But, consistent with the old adage that necessity is the mother of invention, that obstacle also can be an impetus for forward movement, insofar as it can drive environmental policymaking to consider underutilized and unexplored alternatives to the environmental law canon.*²⁹⁴

There will be no “one size fits all” solution to the environmental problems created by climate change²⁹⁵; no panacea that will protect wildlife fleeing the stress of climate change—there will need to be a “a portfolio of solutions.”²⁹⁶ This Article recommends adding a federal version of the public trust doctrine to that portfolio. It finds little in prevailing law or the doctrine itself that limits the doctrine’s use to the state level and much that supports its viability at the federal level for this use given the doctrine’s inherent flexibility, the federal government’s trust responsibility over public lands, and its strong interest in protecting wildlife that inhabit those lands. Alternatively, courts might use the doctrine as an interpretative principle that invites courts to take a hard look at any approval of those barriers by

291. Coplan, *supra* note 5, at 327 (quoting Nat’l Audubon Soc’y v. Superior Court, 658 P.2d 709, 724 (Cal. 1983)).

292. *Id.* at 326 (quoting Just v. Marinette County, 201 N.W.2d 761, 769 (Wis. 1972)).

293. *Id.* at 325 (quoting a Letter from Thomas Jefferson to James Madison (Sept. 6, 1789), in 15 THE PAPERS OF THOMAS JEFFERSON 392 (Julian P. Boyd et al. eds., 1958)).

294. Aagaard, *supra* note 114, at 61.

295. Craig, *supra* note 7, at 16.

296. Fischman, *supra* note 56, at 286.

local or state agencies. To make these suggestions more palatable, the Article proposes that the doctrine's use, including as an interpretative trope, be cabined to wildlife who have spent some portion of their life cycle on public lands where public lands can anchor the doctrine's use, that lands no longer useful for wildlife be released from the doctrine's effect, and that private land owners be able to contract out of the doctrine's application by removing migration obstacles in advance.

Deploying a federalized public trust doctrine together with establishing better interjurisdictional coordination, protecting habitat through a mix of private land use controls, cooperative agreements, habitat acquisition, activity-based regulation, and use of the state public trust doctrine, might give migrating wildlife a chance of surviving climate change in sufficient numbers to guard against their extinction. Safeguarding the future of wildlife in the face of climate change demands innovative legal thinking—this Article is one attempt to do that. The author hopes that it will generate discussion among supporters as well as opponents of the public trust doctrine; even better, she hopes that the federal public trust doctrine might be slipped into the box of potential tools to protect migrating wildlife.